APPENDIX B

HEALTH AND SAFETY PLAN

Hartsdale Village Square, Aristocrat Cleaners

212 East Hartsdale Avenue

Hartsdale, New York 10530

BCA Site #C360111

EnviroTrac
Environmental Services

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1.0 INTRODUCTION

This Health and Safety Plan (HASP) has been prepared to identify the health and safety precautions, methods, and construction activities at the Aristocrat Cleaners (Site) located at 212 E. Hartsdale Avenue, Hartsdale, New York, 10530, to ensure the protection of site workers and the environment during activities pertaining to the remedial investigation of the Site. It addresses specific health and safety issues related to the presence of tetrachloroethylene (PCE) and other hazardous constituents that may be encountered during field activities. The procedures were developed in accordance with Occupational Safety and Health Administration (OSHA) Hazardous Waste Operations and Emergency Response (HAZWOPER) Standard 29 CFR 1910.120.

2.0 SITE BACKGROUND

2.1 Site Description

The Site is located in the middle of a small strip mall at 212-218 E. Hartsdale Avenue in the Town of Greenburgh in Westchester County, New York. East Hartsdale Avenue is a major shopping street with a wide sidewalk in the front and a narrow alleyway and a 2-story parking garage in the rear. The dry cleaner has a Hartsdale Farms market adjoining the North wall and a New York Sports gym on the south wall. The dry cleaner cleans clothes on the premises and has a basement that is approximately 8 feet high where solvent was spilled into the central sump in which groundwater was observed at approximately one foot below the concrete floor. The strip mall is located on the West side of this major shopping street in the hilly downtown urban area of Hartsdale, an unincorporated Hamlet within the Town of Greenburgh. Hartsdale consists of multi-family residences (1.56) and retail shops, commercial facilities and a Metro North Train Station in the valley bottom. This main street is a two-lane main street with wide sidewalks. The area is characterized as a mixed residential and commercial district.

2.2 Spill History

A spill was reported to the New York State Department of Environmental Conservation (NYSDEC) on June 22, 2009 in the basement of Aristocrat Cleaners after soil sample results pertaining to testing conducted by Marksmen Enterprises, LLC on June 5, 2009 were available and NYSDEC issued case number 0903393. Subsequent testing conducted at the Site identified concentrations of VOCs including Tetrachloroethylene in soil, soil vapor and groundwater beneath and in close proximity to the Site.

3.0 OBJECTIVES

The objective of this HASP is to protect on-site worker health and safety during field activities at the Site. General guidelines in the HASP are provided to assure that safe working conditions exist at the site. The health and safety procedures set forth in this plan have been established based on analysis of potential hazards and protection measures have been selected in response to these potential risks. The HASP will be modified if unforeseen changes occur while work is in progress.

This plan includes health and safety procedures required for field activities performed at the site. It has been designed to meet the following objectives:

- Evaluate the risk associated with each operation;
- Provide for identification, recognition, evaluation, and control of health, safety, and environmental hazards (if any);
- Provide the requirements for an optimum, safe, and healthful work environment, in which personnel are not exposed to avoidable risks, accidents, or injuries in the performance of their duties;
- Identify the roles and responsibilities of on-site personnel; and
- Establish personnel protection standards and mandatory safety practices and procedures for all on-site personnel.
- This document will be periodically reviewed to ensure that it is current and technically correct.

4.0 PERSONNEL RESPONSIBILITIES

The Health and Safety Coordinator (HSC) is responsible for the development and implementation of the HASP. The Health and Safety Officer (HSO) will be responsible for the day to day implementation of the HASP. In addition, the HSO is responsible for the distribution of this HASP to all field personnel and discussion of the plan prior to the start of field activities. The field personnel will sign **Attachment 1** of this HASP certifying that they have read, are familiar with and understand the contents of this HASP. The HSO will also have the following authority and responsibilities:

- Responsibility for the field implementation;
- Authority to make necessary field modifications to this HASP with approval of authorized State representatives;
- Responsibility to ensure that at a minimum the following safety equipment is available at the Site prior to start of the work: fire extinguisher, eye wash station, and personal protective equipment and first aid supplies.
- Authority to suspend field operations due to potential health and safety concerns;
- Responsibility to supervise emergency response activities;
- Implementation and documentation of daily pre-task field briefings (tailgate safety meetings).

HSO alternates will be designated to act accordingly when the primary HSO is not present at the Site. All site personnel and contract workers working within the exclusion zone will have received the appropriate level of training necessary to perform applicable duties and comply with 29 CFR 1910.120.

Other site personnel may be called upon to perform HSO duties. The HSO or alternate will be on site at all times during intrusive work activities. Certificates of OSHA 1910.120 40 hour Hazardous Materials Training are included in **Attachment 2**.

All EnviroTrac personnel who will be working at the Site will be provided with a copy of this HASP. All subcontractors and site visitors will follow EnviroTrac's HASP and required to sign the

Affidavit (**Attachment 1**). Personnel responsible for HASP monitoring during on-site activities will be responsible for informing the field workers and subcontractors of any changes in conditions and/or levels of protection required in the affected work area. This HASP must be modified or amended when circumstances or conditions develop that are beyond the scope of the operations described in this HASP. Any changes in project work scope and/or site conditions as described must be amended in writing using the Amendment Sheet included in **Attachment 3**.

All personnel working on-site will supply documentation of compliance with 29 CFR 1910.120 in advance of undertaking any physical activities at the site.

5.0 SITE CHARACTERIZATION

Environmental Hazard Evaluation

The environmental hazards associated with the installation of soil sample collection, soil vapor extraction wells and monitoring points and air monitoring activities at the Site principally concern the potential presence of PCE in soil materials. Potential routes by which workers could be exposed to PCE or other hazardous constituents include:

- Inhalation;
- Ingestion; and
- Dermal Contact.

6.0 CHEMICAL EXPOSURE DATA

All the active site personnel will be protected against potential exposure to the constituents of concern using suitable personal protection as discussed below and as detailed in Section 11.

1. Inhalation

Environmental air monitoring for organic vapors will be conducted through the use of a photoionization detector (PID) within and at the perimeter of the exclusion zone and work areas during all on-site soil testing and activities including collection of soil samples, soil vapor and ambient air samples and installation of soil vapor monitoring points and groundwater monitoring wells. Level D personal protective equipment (PPE) will be required, as detailed in Section 11.

ORGANIC VAPORS

If PID monitoring readings are greater than 25 and less than 100 ppm levels within the breathing zone, engineering controls will be initiated as detailed in Section 13.

If PID readings in the exclusion zone exceed 100 ppm, work will cease. Prior to recommencement of work, work practices will be implemented to lower volatile emissions only after approval by the Engineer. If work practices do not lower emissions to less than 100 ppm then recommencement of work will only take place at appropriate PPE Levels as detailed in Section 11.

2. Ingestion

There is also a possibility of ingestion of soil materials during field activities. Safe work practices should be followed to avoid potential ingestion of soil materials. No food, drink or smoking will be allowed in the exclusion zone.

3. Dermal Contact

Due to the potential for dermal contact with soils containing PCE or other hazardous constituents, all active site personnel performing invasive and non-invasive sampling and pilot testing activities will be required to wear appropriate Level D personal protective clothing, as detailed in Section 11, including work boots, hard hats, eye protection and appropriate work gloves. Work boots should meet ANSI Z41 American National Standard for Personal Protection – Protective Footwear. As a precautionary measure, extra skin protective gear will be available on site in the field vehicle, to include Tyvek suits, to be worn, if necessary. In addition, safety guidance that may be posted throughout the site are included as **Attachments 4 and 5**.

Toxicological and physical characteristics information is provided below for PCE.

GENERAL DESCRIPTION

TETRACHLOROETHYLENE

Tetrachloroethylene, also called perchloroethylene, is a clear colorless volatile liquid having an ether-like odor. It is used as dry cleaning solvent, a vapor degreasing solvent, drying agent for metals, and for the manufacture of other chemicals. It is non-combustible, insoluble in water and its vapors are heavier than air. Symptoms of exposure by ingestion include nausea, flushed face and neck. Target organs are skin, liver, kidneys, eyes, upper respiratory system and central nervous system. The current OSHA permissible exposure limit (PEL) is 100 ppm with a short-term exposure limit (STEL) of 300 ppm/5 minutes and an immediately dangerous to life and health (IDLH) recommendation to treat PCE as a potential human carcinogen. The Material Safety Data Sheet (MSDS) for PCE is included in **Attachment 6**.

<u>HEALTH HAZARDS:</u>

TETRACHLOROETHYLENE

VAPOR: Irritating to eyes, nose and throat. If inhaled will cause difficult breathing, or loss of consciousness. LIQUID: Irritating to skin and eyes. Harmful if swallowed (USCG, 1985).

FIRE/EXPLOSION HAZARDS:

TETRACHLOROETHYLENE

Not flammable. Poisonous gases are produced when heated. Toxic, irritating gases may be generated in fires. (USCG, 1985).

FIRE FIGHTING:

TETRACHLOROETHYLENE

Extinguish fire using agent suitable for type of surrounding fire (material itself does not burn or burns with difficulty). ((C)AAR,1986).

Extinguish fire using agent suitable for type of surrounding fire (material itself does not burn or burns with difficulty). ((C)AAR,1986).

NON-FIRE SPILL RESPONSE:

TETRACHLOROETHYLENE

Keep material out of water sources and sewers. Build dikes to contain flow as necessary. Attempt to stop leak if without hazard.

Land spill: Dig a pit, pond, lagoon, holding area to contain liquid or solid material. Dike surface flow using soil, sand bags, foamed polyurethane, or foamed concrete. Absorb bulk liquid with fly ash or cement powder.

Water spill: If dissolved, apply activated carbon at ten times the spilled amount in region of 10 ppm or greater concentration. Remove trapped material with suction hoses. Air spill: Apply water spray or mist to knock down vapors. Vapor knockdown water is corrosive or toxic and should be diked for containment. ((C)AAR, 1986).

FIRST AID:

TETRACHLOROETHYLENE

If this chemical comes in contact with the eyes, immediately wash the eyes with large amounts of water, occasionally lifting the lower and upper lids. Get medical attention immediately. Contact lenses should not be worn when working with this chemical. If this chemical comes in contact with the skin, promptly wash the contaminated skin with soap and water. Facilities are available at the site for washing. If this chemical penetrates through the clothing, promptly remove the clothing and wash the skin with soap and water. Get medical attention promptly. If a person breathes in large amounts of this chemical, move the exposed person to fresh air at once. If breathing has stopped, perform artificial respiration. Keep the affected person warm and at rest. Get medical attention as soon as possible. If this chemical has been swallowed, get medical attention immediately. (NIOSH, 1987).

7.0 TASK/OPERATION SAFETY AND HEALTH RISK ANALYSIS

The following subsections describe each task/operation in terms of the specific hazards associated with it. In addition, the protective measures to be implemented during completion of those operations are also identified.

7.1 Task by Task Risk Analysis

The evaluation of hazards is based upon the knowledge of site background presented in the Work Plan, and anticipated risks posed by the specific operation.

The following subsections describe each task/operation in terms of the specific hazards associated with it. In addition, the protective measures to be implemented during completion of those operations are also identified. Tables 7-1 & 7-2 provide a summary of task analysis and chemical hazards for each task at the Site. The Permissible Exposure Limit (PEL), Threshold Limit Value (TLV) and Immediately Dangerous to Life and Health (IDLH) levels are listed on Table 7-1 & 7-2 for the contaminant of concern. In general OSHA PELs are regulatory requirements that must be met and TLVs are guidance values. The PEL represents the maximum exposure concentration an individual can be exposed to as a time weighted average of 8 hours. TLVs represent the exposure concentration which an individual can be exposed to eight hours a day, five days a week (40 hours), without harmful effects. The IDLH represents the maximum concentration of a contaminant for which an individual can be exposed to for thirty minutes without any "escape impairing" symptoms or irreversible health effects.

TABLE 7-1 Task Analysis - Perimeter and Air Monitoring Chemical Hazards of Concern

CONTAMINANT	PEL/TLV/IDLH	ROUTES OF CONCENTRATION	EXPOSURE
TETRACHLORO-ETHYLENE	PEL:100 ppm TLV: 25 ppm IDLH: Not Applicable, Potential Human Carcinogen (NIOSH, 1987)	AIR SUBSURFACE SOIL	INHALATION INGESTION CONTACT

Notes: (PEL=Permissible Exposure Limit, TLV=Threshold Limit Value, IDLH=Immediately Dangerous to Life and Health)

TABLE 7-2 Task Analysis - Well Installation and Excavation Chemical Hazards of Concern

CONTAMINANT	TLV/IDLH	ROUTES OF CONCENTRATION	EXPOSURE
TETRACHLORO-ETHYLENE	PEL:100 ppm TLV: 25 ppm IDLH:Not Applicable, Potential Human Carcinogen (NIOSH, 1987)	AIR SUBSURFACE SOIL	INHALATION INGESTION CONTACT

Notes: (PEL=Permissible Exposure Limit, TLV=Threshold Limit Value, IDLH=Immediately Dangerous to Life and Health)

7.2 Task Hazard Description and Hazard Prevention

The following section identifies the hazards associated with site tasks, and provides suggestions for hazard prevention on-site.

PERIMETER MONITORING:

The site boundaries clearly mark off the "clean" off-site areas, from the "contaminated" on-site areas, and so chemical contamination from the site should not be a hazard associated with perimeter and off-site monitoring.

Perimeter monitoring and off-site monitoring will be performed once the site boundaries have been established. Hazards specific to perimeter and off-site monitoring include encounters with non-project personnel. This is a unique hazard, in that untrained personnel prove to be a risk when performing any type of site work. Inquisitive and/or hostile persons may interfere with the monitoring/sampling effort, jeopardizing their safety as well as the safety of the field team.

AIR MONITORING:

General hazards frequently encountered during air monitoring include:

- Electrical hazards as a result of power sources to charge/run air monitoring equipment.
- Placing air monitoring equipment in elevated areas or areas where slip/trip and fall hazards exist.
- Hazards associated with ambient environment being sampled.
- Readings indicating non-explosive atmospheres, low concentrations of toxic substances, or other conditions may increase or decrease suddenly, changing the associated risks.
- Air sampling matrix solutions may be acidic or basic, causing a corrosive hazard, and broken glass collection tubes can cut hands if mishandled.

HAZARD PREVENTION DURING AIR MONITORING:

Grounded plugs should be used when a power source is needed to reduce the hazard of electric shock.

- Generators or air monitoring equipment should be used in dry areas, away from possible ignition sources. Do not stand in water or other liquids when handling equipment. Electrical equipment shall conform to OSHA 1910.303(a), 1910.305(a),(f),(f)(3).
- Ground fault interrupters are used in the absence of properly grounded circuitry or when portable tools must be used in wet areas.
- Extension cords should be protected from damage and maintained in good condition.
- Air monitoring equipment should be placed within easy reach.
- Personnel should be thoroughly familiar with the use, limitations and operating characteristics of the monitoring instruments.

- Perform continuous monitoring in variable atmospheres.
- Use intrinsically safe instruments until the absence of combustible gases or vapors is anticipated.

SYSTEM CONSTRUCTION AND INSTALLATION:

Activities during pilot testing and system installation may include trenching for underground system lines, installation of overhead lines, off site construction of the system and testing, and connection of the system. Hazards may include:

- Contact with or inhalation of contaminants, potentially in high concentrations in sampling media.
- Noise levels exceeding the OSHA PEL of 90 dBA are both a hazard and a hindrance to communication.
- Fumes (carbon monoxide) from the backhoe.
- Underground pipelines and utility lines can be ruptured or damaged during trenching operations
- Moving parts on the backhoe/personnel lifts may catch clothing.
- Moving the backhoe/personnel lifts over uneven terrain may cause the vehicle to roll over or get stuck in a rut or mud. Be aware of hazards associated with moving heavy machinery such as collision with personnel and structures.
- High pressure hydraulic lines and air lines used on the backhoe and personnel lifts are hazardous when they are in ill repair or incorrectly assembled.
- Back strain and muscle fatigue due to lifting and shoveling techniques.
- Working with power tools during system shed construction.
- Electrical hazards when energizing the system during testing.

HAZARD PREVENTION DURING SYSTEM CONSTRUCTION AND INSTALLATION:

- Review the contaminants suspected to be on-site and perform air monitoring as required.
- Continuously monitor carbon monoxide levels during machinery operation Shut down backhoe and/or divert exhaust fumes.
- All chains, lines, cables should be inspected daily for weak spots, frays, etc.
- Daily backhoe/personnel lift safety inspections (e.g. backup alarm) will be documented.
- A spotter on the ground will direct backhoe during operation.

- Safety vests will be worn to increase visibility of personnel.
- Ear muffs and ear plugs effectively reduce noise levels and will be worn during installation activities that have noise levels above 90 dBA.
- Hard hats should be worn at all times when working around heavy equipment. Secure loose clothing.
- Proper lifting (pre-lift weight assessment, use of legs, multiple personnel) techniques will prevent back strain. Use slow easy motions when shoveling and digging to decrease muscle strain.
- A thorough underground utilities search should be conducted before the commencement of a trenching project.
- All high pressure lines should be checked prior to and during use.
- Electric tools will be inspected daily for damage to safety guards and wires.
- All electric tools are to be properly grounded in accordance with manufacturers specifications.
- To minimize exposure to chemical contaminants, a thorough review of suspected contaminants should be completed and implementation of an adequate protection program.
- Follow lockout/tag out procedures when working with electrical components of the system during testing.

General Hazard Evaluation

In addition, there are several site activities which do not involve the potential contact with PCE or other hazardous constituents and therefore have low associated hazard for exposure. While these activities do not involve significant exposure risks, various physical hazards do exist. General hazards associated with these activities include the following:

- Personnel slipping, tripping, and falling as a result of improperly stored equipment and materials;
- Puncture wounds and lacerations from sharp edges of hand tools;
- Personnel being struck by equipment, tools, and vehicles; injuries to feet from falling objects, or sharp objects;

- And Back or other muscle injuries or strains from improper or excessive lifting.

To protect against accidental mechanical hazards, safe work practices will be followed and a hard hat, gloves, appropriate eye/face protection, and durable work boots that meet ANSI Z41 American National Standard for Personal Protection should be worn when working around heavy equipment, as detailed in Section 11.

Adverse weather conditions are also important considerations in planning and conducting site operations. Cold or hot weather can cause physical discomfort, loss of efficiency, and personnel injury. To protect against injury due to cold or hot weather, appropriate control measures will be taken, as detailed in Section 11.

8.0 RISK CHARACTERIZATION

Based on the following factors, it is believed that the conditions of exposure during field activities at the Site pose low risk of adverse health effects or injury:

- Environmental monitoring will be performed, during intrusive activity, for organic vapors explosive atmosphere and carbon monoxide.
- Personnel involved with intrusive activity within the exclusion zone will follow OSHA guidelines and wear the appropriate level of protection (Section 11).
- All site work will be accomplished at Level D personal protection and upgrading to Level C based on action levels (Section 11).
- Discontinuation of site activities will occur when personnel exposure to organic vapors exceed the PEL or the STEL for PCE.
- As an engineering control, a regenerative air blower or exhaust fans may be used to reduce the potential for dangerous concentrations of carbon monoxide and VOCs in the breathing zone near the borings.
- Mandatory safe occupational work practices will be followed at all times.

9.0 SITE CONTROL

9.1 Site Work Locations

Activities involving the installation of wells, air monitoring, and excavation will be performed at several locations throughout the site. The work area is the location in which the actual activity will occur. Only authorized personnel, including personnel conducting the work activities involved, and specialized personnel such as subcontractors engaged in well installation and heavy equipment operators, will be allowed in the work area. Within the work area, the levels of protection will be determined based on the degree of hazard present, as detected by the measurements obtained with the photoionization detector (PID), and/or other activity-specific monitoring equipment.

9.2 Work Zones

Work zones will be defined with the Engineer's approval prior to the commencement of work activities and be clearly marked off with traffic cones and/or caution tape. These work zones will limit equipment, operations and personnel in the areas as defined below:

9.2.1 Exclusion Zone

This shall include all areas where potential environmental monitoring has shown or is suspected that a potential chemical hazard may exist to workers. The level of PPE required in these areas shall be determined by the site HSO after air monitoring and on-site inspection has been conducted. The area shall be clearly delineated from the decontamination area. As work proceeds, the delineation boundary shall be relocated as necessary to prevent the accidental contamination of nearby people and equipment.

9.2.2 Contamination Reduction Zone

This zone will occur at the interface between the Exclusion Zone "Hot Zone" and Support Zone "Clean Zone" and shall provide a transfer of personnel and equipment to and from the Support

Zone to the Exclusion Zone, the decontamination of personnel and equipment prior to entering the Support Zone, and for the physical segregation of the Support Zone and Exclusion Zone.

9.2.3 Support Zone

This area is the remainder of the work site and project site. The function of the Support Zone includes:

- An entry area for personnel, material and equipment to the Exclusion Zone of site operations through the Contamination Reduction Zone;
- An Exit for decontamination personnel, materials and equipment from the “Decon” area of site operations;
- The Housing of site special services; and
- A storage area for clean safety and work equipment.

Small decontamination areas may be set up adjacent to the work area to facilitate decontamination of equipment that is reused throughout the field activity.

9.3 Security

Periodic security patrols will be conducted to ensure that adequate security is being maintained. Only workers authorized by the field manager may be allowed to enter the site. Most of the work performed at Site will be within the buildings which will be locked during non working hours and the remaining outside work will be surrounded with a security fence. The gates of the fence will be secured by chains and padlocks. Warning signs will be attached to the fence to discourage entry by unauthorized personnel. While work activities are being implemented within fenced areas, existing security will be maintained. The site or alternative HSO will brief all visitors of all security and safety plans.

9.4 Site Communications

Communications on-site will be conducted through verbal communications. When out of audible range, verbal communications may be assisted using portable telephones and personal pagers.

9.5 General Work Rules

To protect against the occurrence of accidents and dangerous situations, as well as to minimize the potential for emergency events, all on-site personnel shall:

- Attend a daily tailgate safety meeting, read this HASP and sign the Affidavit (**Attachment 1**) attesting to this, prior to beginning of site activities. The HASP will be reviewed periodically by all on-site personnel conducting field activities. Daily Tailgate Safety Logs are included in **Attachment 7**.
- Field work will only be conducted during daylight hours unless adequate artificial lighting is provided and community/residential zoning laws permit operation after certain hours.
- No eating, drinking or smoking will be permitted within the exclusion or contamination reduction zone.
- All personnel shall be knowledgeable in the use of the first-aid equipment outlined in **Attachment 8**. Personnel will be advised of the precautions to be taken against sunburn, heat stroke, frostbite, and hypothermia.
- Only authorized personnel will be allowed on site.
- Fire extinguishers shall be available at the work site for immediate availability in an emergency.

To minimize the possibility of injuries, the following general precautions will be taken:

- All hand and power tools will be maintained in a safe condition.
- Safety guards will be kept in place during use.
- Power tools will be double-insulated and/or properly grounded.
- Walkways will be kept clear of equipment, vegetation, excavated material, or other obstructions.
- Proper work gloves will be provided and used when the possibility of burns, lacerations, or other injury exists.
- Hard hats and work boots will be worn.
- Employees exposed to vehicular traffic on public roads and working around heavy machinery will wear warning vests.

- Employees will observe proper lifting techniques and obey sensible lifting limits.
- Heavy equipment will be used in accordance with the manufacturer's specifications and guidelines.

To guard against injury caused by exposure to cold temperatures, the following measures will be taken in cold weather:

- Workers will be outfitted with adequate winter clothing.
- Clothing will be changed if it becomes wet.
- Warm shelters and regular rest periods will be available for workers.
- Training sessions will be held as appropriate to emphasize warning symptoms of hypothermia or frostbite such as reduced coordination, drowsiness, impaired judgment, fatigue, and numbing of toes and fingers.
- Warm beverages will be provided.

To guard against injury by heat stress, the following control measures will be employed in hot weather:

Provision for adequate liquids to replace lost body fluids. Employees must replace water and salt lost through perspiration.

Employees will be encouraged to drink more than the amount required to satisfy thirst, since thirst satisfaction is not an accurate indicator of adequate salt and fluid replacement. Replacement fluids can be a 0.1 percent salt solution, commercial mixes such as Gatorade or Quick Kick, or a combination of these with fresh water.

- Establishment of a work regimen that will provide adequate rest periods for cooling down. Rest breaks are to be taken in a cool, shaded area during hot weather.
- Employees shall not be assigned other tasks during rest periods.
- All employees shall be informed of the importance of adequate rest, acclimation, and proper diet in the prevention of heat stress.

Health and Safety Responsibilities

All Project Personnel are responsible for the following:

- Taking all reasonable precautions to prevent injury to themselves and to their fellow employees.
- Implementing the requirements of this HASP and reporting any deviations from the anticipated conditions described herein.
- Performing only those tasks that they believe they can do safely, and immediately reporting any accidents and/or unsafe conditions to the work supervisor.
- Filling out an accident report form included in **Attachment 9** and for all injuries, regardless of severity. The form will be submitted to the work supervisor. Subcontractor is required to notify contractor within 24 hours of any work related injury.

10.0 PERSONNEL TRAINING

Field team personnel associated with those activities in which the potential for exposure to hazardous substances exists are required to participate in a health and safety training program that complies with the OSHA standard 29 CFR 1910.120. This program instructs employees on general health and safety principles and procedures, proper operation of monitoring instruments, and use of personnel protective equipment.

In addition, field team personnel must undergo site-specific training prior to the start-up of any given project or task. As activities change at a particular work site, related training must be provided as necessary. The site-specific training will address potential hazards and associated risks, site operating procedures, emergency response and site control methods to be employed. All work site personnel will document their review of the HASP with their signature on the Affidavit (**Attachment 1**).

11.0 PERSONAL PROTECTIVE AND SAFETY EQUIPMENT

Personal Protective Equipment Selection

Based on available data, it is anticipated that all field activities will be performed at Level D protection.

Level D

The following Personal Protective Equipment (PPE) for Level D will be necessary for all field personnel on site:

- Boots (should be safety toe when working near heavy machinery);
- Hard hat;
- Work gloves;
- Dust mask (if required by the activity) and;
- Safety glasses

If contaminated soil is exposed by drilling or trenching, safety glasses and overboots will be used.

Additionally, if and when free phase liquids are encountered, the following equipment will be necessary for all field personnel in the affected work area or dealing with the affected soil material:

- Tyvek (e.g., Saranex) disposable coveralls;
- Safety glasses/goggles/face shield;
- Chemically resistant overboots; and
- Protective gloves.

Level C

An upgrade of PPE to Level C may be necessary for all personnel in the work area when engineering controls do not lower the exposure levels to within acceptable limits. Fit test documentation is required if Level C respiratory protection is to be worn.

The upgrade will consist of donning:

- Laminated-type Tyvek (e.g., Saranex) disposable coveralls (if not already donned);
- Nitrile or PVC gloves;
- Full-face respirator equipped with approved cartridges suitable for up to 1,000 ppm organic vapors; and
- Chemically resistant overboots.

Level B

An upgrade of PPE to Level B will be necessary for all personnel in the work area if Level C protection does not adequately protect worker exposure.

The upgrade will consist of donning:

- Pressure demand, full-facepiece SCBA or pressure-demand supplied-air respirator with escape SCBA
- Inner gloves

Work Stoppage

Work stoppage will be required for all personnel in the work area when the PID reading is greater than 100 ppm within the breathing zone of the exclusion zone. Activities may be resumed when levels below 100 ppm are reached.

12.0 PERSONAL PROTECTIVE EQUIPMENT USE

Just prior to entering into the work area, the required PPE will be donned. In the event of damage to the PPE, a worker will return to the decontamination area set up for the specific work activity to repair or replace the damaged gear. All used PPE will be wrapped in plastic bags and disposed of as regular garbage.

First-Aid Supplies and Safety Equipment

First-Aid supplies will be located within the contamination reduction zone. The first-aid equipment list is included in **Attachment 8**. An emergency contact telephone list has been included in Section 15.0.

Safety equipment in addition to the PPE may be required depending upon the specific site activity. A list of safety equipment that may be required is included in **Attachment 8**.

13.0 MONITORING PROGRAM

Real-time air monitoring for VOCs in the work zone will performed during work activities. The following describes the air monitoring plan for the work zone during intrusive and non-intrusive activities. The permissible exposure limit (PEL) for PCE is 100 parts per million (ppm) time weighted average (TWA) and averaged over an 8-hour period (OSHA), with an OSHA peak of 300 ppm (5-minute average in any three hours).

Work Zone (building interior)

- VOCs will be monitored in the breathing zone of the work area prior to daily activities and on a periodic basis during intrusive work using a PID. The period of VOC monitoring will be adjusted based on the activity and readings obtained (i.e., continuous air monitoring may be performed during initial exposure and excavation of subsurface soil).
- During non-intrusive work, VOCs will be monitored in the breathing zone of the work area prior to daily activities and once during work activities using a PID. VOC monitoring will be adjusted based on the readings obtained (i.e., hourly air monitoring may be performed if initial readings are above 25 ppm).
- If the total organic vapor level exceeds 25 ppm, engineering controls will be instituted. Readings will be taken continuously in the work zone during implementation of an engineering control if readings are consistently above 25 ppm to ensure that the TWA is not exceeded. If readings are below 25 ppm during implementation of an engineering control and no new soil is exposed, readings will be collected hourly in the breathing zone of the work area.
- Carbon monoxide (CO) will be monitored in the work zone, continuously during machinery operation using a CO meter. If CO concentration exceeds 35 ppm work activities will be halted and engineering controls will be instituted.
- PCE is non-combustible, however LEL will be monitored in the work zone along with CO, continuously during intrusive activity in the event that other compounds are present. If the LEL exceeds 10% then work activities will be halted and engineering controls will be instituted.

Following is a summary of action levels for work zone monitoring.

Table 13-1 Action Levels for Work Zone Monitoring

HAZARD	Monitoring Method	Action Level	Protective Measures
Explosion or Fire	CGI	<5% LEL	Continue operations
		5-10% LEL	Continue monitoring with caution as higher levels are encountered
		>10% LEL	Stop work
Volatiles (PCE)	PID (within the site work area)	>25 ppm <100 (OSHA TWA)	Initiate engineering controls, continue operations
		>100 ppm (PEL) <200 ppm	Stop Work, evacuate work area, and initiate integrated work zone and perimeter air sampling and engineering controls. Upgrade to Level C PPE if engineering controls do not reduce concentration to <100 ppm.
		>300 ppm 5 minutes (STEL)	Stop Work, evacuate work area, notify authorities and initiate integrated air sampling and engineering controls.

The HSO or alternate will be designated to perform air monitoring. All meters used for air monitoring will be checked against standard gas concentrations daily and calibrated, if necessary by the designated HSO. A calibration log will be kept with each instrument used for air monitoring.

Physical Condition Monitoring

Heat Stress

One of the most frequently encountered problems associated with operations conducted under PPE Safety Level C is heat stress. Heat stress manifests itself in two forms: heat stroke and heat exhaustion. Depending on ambient conditions, the worker and the work being performed, heat stress can adversely affect a worker in as little as 15 minutes. This is especially important as ambient temperatures exceed approximately 69^{o} F at high humidity.

Heat stroke is a much more dangerous form of heat stress. Symptoms of heat stroke include

high body temperatures and red or flushed hot, dry skin. There may be dizziness, nausea, headache, rapid pulse, and unconsciousness. First-aid for all forms of heat stress includes cooling the body by removing PPE, moving to a safe area, and allowing the worker to rest in a cooler environment.

Frostbite

Frostbite may be categorized into three types:

1. Frostbite or incipient frostbite characterized by sudden blanching or whitening of the skin.
2. Superficial frostbite - skin has a waxy or white appearance, is firm to the touch but tissue beneath is resilient.
3. Deep frostbite - tissues are cold and hard indicating an extremely serious injury.

Sign and symptoms of frostbite include:

- The skin changes to white or grayish-yellow in appearance.
- Pain is sometimes felt early but subsides later (often there is no pain).
- Blisters may appear later.
- The affected part feels intensely cold and numb.
- The person frequently is not aware of frostbite until someone tells him or her that they observe the pale, glossy skin.

As time passes, the affected worker may become confused, stagger, experience eyesight impairment, become unconscious, and breathing may stop.

First-aid frostbite will include protecting the frozen area from further injury, bringing the victim indoors, warming the affected areas quickly with warm water, and maintaining respiration according to the first-aid procedures. Medical assistance should be obtained immediately.

Frostbite may be prevented by the use of insulated gloves, socks and other protective clothing capable of keeping moisture away from the skin. All protective clothing should be chosen so that it is compatible with any chemical-resistant clothing required for the site activities involved.

14.0 DECONTAMINATION PROCEDURES

14.1 General

An equipment and worker decontamination area will be set up adjacent to the work area. The equipment decontamination procedures described herein include in-the-field and post-field decontamination of sampling equipment. The non-disposable equipment will be cleaned after completing each sampling event. Rinse water from equipment that comes in contact with contaminated soil will be contained on site for later disposal.

14.2 Safety Procedures During Equipment Decontamination

1. Personnel will wear the following safety equipment when decontaminating smaller equipment (i.e., shovels):
    - Safety glasses, goggles, and/or a splash shield; and
    - Nitrile or PVC gloves.

2. Personnel will wear the following additional safety equipment when decontamination larger equipment with a high-pressure water/steam decontamination unit (i.e., drill rigs):
    - Tyvek (e.g., Saranex) disposable coveralls;
    - Safety glasses
    - Chemically resistant overboots.
    - Hard hat

14.3 Decontamination Procedures

Drilling Equipment - Drilling equipment that comes in direct contact with subsurface soil will be cleaned with potable water before leaving the site. All equipment that comes into direct contact with subsurface soil will be decontaminated with a power washer or brush depending on the size of the equipment.

1) Potable water scrub to remove excess soil;
2) Potable water rinse; and
3) Air dry

Excavation Equipment (shovels, etc.) - All excavation equipment that has had direct contact with contaminated soil will be decontaminated before leaving the site.

1) Potable water scrub to remove excess soil;
2) Potable water rinse; and
3) Air dry

Meters and Probes - All meters and probes that are used in the field (other than those used solely for air monitoring purposes, e.g., PID) will be decontaminated between use as follows:

1) Non-phosphate detergent and water scrub to remove visual contamination;
2) Potable water rinse; and
3) Air dry

Disposal Method

PPE solids (e.g., disposable gloves, disposable clothing, and other disposable equipment) will be decontaminated as necessary prior to disposal as normal solid waste. Rinse water generated during decontamination of equipment or PPE that comes in contact with contaminated soil or water will be contained in properly labeled drums, on site, for later disposal as necessary.

Decontamination Areas

The equipment decontamination areas will be located within the work area. A decontamination pad will be constructed of plastic sheeting, sloped toward to allow for contaminated rinse water to be collected for transfer to onsite storage containers for later disposal. Plastic sheeting will be placed on plywood to prevent tearing. Decontamination procedures will be conducted on equipment, instruments, etc. if such equipment, etc. comes in contact with contaminated soil during intrusive work within the exclusion zone. All equipment (i.e. drilling rods) that contacts soil will be considered contaminated and properly decontaminated before leaving the site. All decontamination activities for contaminated equipment, etc. will be conducted within the

designated decontamination area. All rinsate water will be pumped into and contained in 55-gal.drums or other suitable container and properly labeled. Sediments remaining in the contained area will also be drummed.

15.0 CONTINGENCY PLAN

15.1 Emergency Notification

If downwind readings of organic vapors exceed the action levels described in Table 13-1, and remedial measures fail to control their release, the local Police and Fire Departments, State and Federal authorities will be notified immediately at the following numbers:

Fire Department	911
8th Precinct Police Dept Local Police Department	911
Hospital & Medical Center	Westchester Medical Center 100 Woods Road Valhalla, NY 10595 (914) 493-7000
New York Poison Control	(800) 336-6997
Chemical Emergency Advice (CHEMTREC)	(800) 424-9300
New York State Department of Health	(518) 458-6305
Utility one call center	(800) 272-4480
Federal	
National Response Center	(800) 424-8802
National Poison Control	(800) 926-1253

15.2 On-Site Fire Prevention

To protect and prevent against accidental fire hazards, safe work practices will be followed and:

1. Fire extinguishers shall be available in each vehicle and system shed and should only be used in accordance with the manufacturer's specifications and guidelines.
2. The Health and Safety Officer shall notify the Fire department and Engineer in the event that a fire cannot be controlled by the available on-site equipment.
3. System electric shall satisfy all National Electric Code (NEC) criteria.

4. Smoking is prohibited in the exclusion and contamination reduction zone.

15.3 Evacuation Procedures

Local authorities and emergency agencies will be informed, if necessary, of the purpose, schedule and scope of the construction activities 5 days prior to the initiation of construction. The exclusion zone will be delineated and air monitoring activities started prior to invasive work. Results of air monitoring at the perimeter of the exclusion zone will be monitored by the Health and Safety Officer and recorded in the on-site project Logbook. All work activities shall be halted and the Engineer notified if any of the following levels of organic vapors are exceeded at the exclusion zone perimeter:

- Organic vapor levels greater than 100 ppm
- Explosive atmosphere 10% of the lower explosive limit

If any of the above conditions persists after cessation of work activities, and cannot be alleviated by the implementation of engineering controls, then the following contingency plan shall be placed into effect:

- The perimeter of the nearest downwind residence or commercial property shall be monitored. If organic vapor levels are >100 ppm measured hourly, the evacuation of the residence/commercial property is advisable;
- The Health and Safety Officer will contact the Engineer and appropriate local agencies, and request assistance in completing the evacuation; and
- Designate on-site personnel will assist the local authorities in the evacuation of the immediate off-site area without delay.

15.4 Medical Emergency

In the event of a medical emergency in which Hospital / Emergency care is necessary personnel will be a taken to the nearest Hospital. A hospital direction map is included as **Attachment 10**.

ATTACHMENTS

ATTACHMENT 1
AFFIDAVIT

Affidavit

I,_____(name), of_____
(company name) have read the Health and Safety Plan (HASP).

I agree to conduct all on-site work in accordance with the requirements set forth in this HASP and understand that failure to comply with this HASP could lead to my removal from this site.

Signed:

_____Date:_____

ATTACHMENT 2
TRAINING CERTIFICATES

Current OSHA 1910.120 Training Certificates for Site Personnel
(To be provided)

ATTACHMENT 3
AMENDMENT SHEET

Amendment Sheet

Site Name: _____

Site Location: _____

Project Manager: _____

HSO: _____

Description of changes of field activities and hazards.

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Requested By:_____ **HSO Approval:**_____

Date: _____ **Date:**_____

ATTACHMENT 4
SAFETY GUIDANCE

EnviroTrac
Environmental Services

Safety Guidance

The primary safety emphasis is preventing personal contact with gasses, soils, sludge and water. Towards that end, the following guidance has been established:

Requirements

A. Eating on the site is PROHIBITED except in specifically designated areas.
B. All project personnel on the site must wear clean or new gloves daily.
C. If you get wet to the skin, you must wash the affected area with soap and water immediately. If cloths in touch with the skin are wet, these must be changed.
D. You must wash your hands and face before eating, drinking or smoking.

Recommendations

A. Do not smoke with dirty hands; better yet, do not smoke.
B. Check personal habit which could get soil or water into your body. Examples: food off your fingers, wiping your face or nose with a dirty hand or running a dirty hand through your hair.
C. Check that any regularly worn clothing is clean. Examples: dirty watchbands, neck chains and a dirty liner on your safety helmet. Safety practices with poisonous chemicals can be summed up with a few words.
    - Don’t breathe in chemical odors and don’t touch the water, soil, and sludge.
    - If you do get dirty or wet, clean up as soon as possible.

ATTACHMENT 5
SAFETY REMINDER

Safety Reminder - Working in Proximity of Toxic Chemicals

- Chemicals in gases, soil, sludge and water can't cause problems unless you breathe, eat or put them on your skin.
- Don't let chemicals enter your mouth, nose, or stay on your skin.
- Use common sense personal hygiene
    A. Don't eat or drink on the site.
    B. Don't smoke in the work area.
    C. Wear appropriate personal protective clothing.
    D. Keep your hands clean whenever practical. Wash before eating, drinking, or smoking.
    E. Don't carry chemicals home to your family. For example, on clothing, mud in the car, dirty hands.
    F. Follow all procedures in the HASP.

ATTACHMENT 6
MATERIAL SAFETY DATA SHEET

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Material Safety Data Sheet

SECTION 1 CHEMICAL PRODUCT IDENTIFICATION

EMERGENCY CONTACT:
CHEMTREC 1-800-424-9300

SUBSTANCE: TETRACHLOROETHYLENE

TRADE NAMES/SYNONYMS:
MTG MSDS 238; PERCHLOROETHYLENE; 1,1,2,2-TETRACHLOROETHYLENE; ETHYLENE TETRACHLORIDE; PERC; TETRACHLORETHYLENE; PERCHLORETHYLENE; TETRACHLOROETHENE; PCE; RCRA U210; UN 1897; C2Cl4; MAT22900; RTECS KX3850000

CHEMICAL FAMILY: halogenated, aliphatic
CREATION DATE: Jan 24 1989
REVISION DATE: Mar 19 2003
CAS NUMBER: 127-18-4

SECTION 2 HAZARDS IDENTIFICATION

NFPA RATINGS (SCALE 0-4): HEALTH=3 FIRE=0 REACTIVITY=0
EMERGENCY OVERVIEW:
COLOR: colorless
PHYSICAL FORM: volatile liquid
ODOR: faint odor, sweet odor
MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, central nervous system depression, cancer hazard (in humans)

POTENTIAL HEALTH EFFECTS:
INHALATION:
SHORT TERM EXPOSURE: irritation, nausea, vomiting, chest pain, difficulty breathing, irregular heartbeat, headache, drowsiness, dizziness, disorientation, mood swings, loss of coordination, blurred vision, lung congestion, kidney damage, liver damage

LONG TERM EXPOSURE: irritation, nausea, stomach pain, loss of appetite, headache, drowsiness, dizziness, disorientation, sleep disturbances, pain in extremities, loss of coordination, blurred vision, hormonal disorders, internal bleeding, heart damage, liver damage, birth defects, brain damage, tumors, cancer

SKIN CONTACT:
SHORT TERM EXPOSURE: irritation (possibly severe)
LONG TERM EXPOSURE: irritation
EYE CONTACT:
SHORT TERM EXPOSURE: irritation
LONG TERM EXPOSURE: irritation
INGESTION:
SHORT TERM EXPOSURE: same as effects reported in short term inhalation
LONG TERM EXPOSURE: same as effects reported in long term inhalation

SECTION 4 FIRST AID MEASURES

INHALATION: If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.
SKIN CONTACT: Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.
EYE CONTACT: Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.
INGESTION: If vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Get medical attention immediately.
NOTE TO PHYSICIAN: For inhalation, consider oxygen. For ingestion, consider gastric lavage. Consider oxygen.

SECTION 5 FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARDS: Negligible fire hazard.
EXTINGUISHING MEDIA: carbon dioxide, regular dry chemical Large fires: Use regular foam or flood with fine water spray.
FIRE FIGHTING: Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. For tank, rail car or tank truck, evacuation radius: 800 meters (1/2 mile).
FLASH POINT: No data available.

SECTION 6 ACCIDENTAL RELEASE MEASURES

SOIL RELEASE:
Dig holding area such as lagoon, pond or pit for containment. Dike for later disposal. Absorb with sand or other non-combustible material.
WATER RELEASE:
Absorb with activated carbon. Remove trapped material with suction hoses.
OCCUPATIONAL RELEASE:
Avoid heat, flames, sparks and other sources of ignition. Stop leak if possible without personal risk. Small liquid spills: Absorb with sand or other non-combustible material. Large spills: Dike for later disposal. Remove sources of ignition. Keep unnecessary people away, isolate hazard area and deny entry. Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).

SECTION 7 HANDLING AND STORAGE

STORAGE: Store and handle in accordance with all current regulations and standards. Store in a cool, dry place. Store in a well-ventilated area. Avoid heat, flames, sparks and other sources of ignition. Keep separated from incompatible substances.

SECTION 8 EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS:

TETRACHLOROETHYLENE (PERCHLOROETHYLENE):
100 ppm OSHA TWA
200 ppm OSHA ceiling
300 ppm OSHA peak 5 minute(s)/3 hour(s)
25 ppm (170 mg/m3) OSHA TWA (vacated by 58 FR 35338, June 30, 1993)
25 ppm ACGIH TWA
100 ppm ACGIH STEL
VENTILATION: Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.
EYE PROTECTION: Wear splash resistant safety goggles. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.
CLOTHING: Wear appropriate chemical resistant clothing.
GLOVES: Wear appropriate chemical resistant gloves.
RESPIRATOR: The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA.
At any detectable concentration -
Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode. Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply.
Escape -
Any air-purifying respirator with a full facepiece and an organic vapor canister.
Any appropriate escape-type, self-contained breathing apparatus.
For Unknown Concentrations or Immediately Dangerous to Life or Health -
Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full facepiece.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: liquid
APPEARANCE: clear
COLOR: colorless
PHYSICAL FORM: volatile liquid
ODOR: faint odor, sweet odor
MOLECULAR WEIGHT: 165.83
MOLECULAR FORMULA: Cl2-C-C-Cl2
BOILING POINT: 250 F (121 C)
FREEZING POINT: -2 F (-19 C)
VAPOR PRESSURE: 14 mmHg @ 20 C
VAPOR DENSITY (air=1): 5.83
SPECIFIC GRAVITY (water=1): 1.6227
WATER SOLUBILITY: 0.015%
PH: Not available
VOLATILITY: Not available
ODOR THRESHOLD: 50 ppm
EVAPORATION RATE: 2.8 (butyl acetate=1)
COEFFICIENT OF WATER/OIL DISTRIBUTION: Not available
SOLVENT SOLUBILITY:
Soluble: alcohol, ether, benzene, chloroform, oils

SECTION 10 STABILITY AND REACTIVITY

REACTIVITY: Stable at normal temperatures and pressure.
CONDITIONS TO AVOID: Avoid heat, flames, sparks and other sources of ignition. Containers may rupture or explode if exposed to heat.
INCOMPATIBILITIES: acids, metals, bases, oxidizing materials, combustible materials
HAZARDOUS DECOMPOSITION:
Thermal decomposition products: phosgene, halogenated compounds, oxides of carbon
POLYMERIZATION: Will not polymerize.

SECTION 11 TOXICOLOGICAL INFORMATION

TETRACHLOROETHYLENE:
IRRITATION DATA:
810 mg/24 hour(s) skin-rabbit severe; 500 mg/24 hour(s) skin-rabbit mild; 162 mg eyes-rabbit mild; 500 mg/24 hour(s) eyes-rabbit mild
TOXICITY DATA:
34200 mg/m3/8 hour(s) inhalation-rat LC50; >10000 mg/kg skin-rabbit LD50 (Dow); 2629 mg/kg oral-rat LD50

CARCINOGEN STATUS: NTP: Anticipated Human Carcinogen; IARC: Human Limited Evidence, Animal Sufficient Evidence, Group 2A; ACGIH: A3 -Animal Carcinogen; EC: Category 2
LOCAL EFFECTS:
Irritant: inhalation, skin, eye

ACUTE TOXICITY LEVEL:
Moderately Toxic: ingestion
Slightly Toxic: inhalation

TARGET ORGANS: central nervous system

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: eye disorders, heart or cardiovascular disorders, kidney disorders, liver disorders, nervous system disorders, skin disorders and allergies

TUMORIGENIC DATA: Available.

MUTAGENIC DATA: Available.

REPRODUCTIVE EFFECTS DATA: Available.

ADDITIONAL DATA: May be excreted in breast milk. Alcohol may enhance the toxic effects. Stimulants such as epinephrine may induce ventricular fibrillation.

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY DATA:
FISH TOXICITY: 8430 ug/L 96 hour(s) LC50 (Mortality) Flagfish (Jordanella floridae)
INVERTEBRATE TOXICITY: 7500 ug/L 48 hour(s) EC50 (Immobilization) Water flea (Daphnia magna)
ALGAL TOXICITY: 509000 ug/L 96 hour(s) EC50 (Photosynthesis) Diatom (Skeletonema costatum)
FATE AND TRANSPORT:
BIOCONCENTRATION: 49 ug/L 1-21 hour(s) BCF (Residue) Bluegill (Lepomis macrochirus) 3.43 ug/L

SECTION 13 DISPOSAL CONSIDERATIONS

Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): U210. Hazardous Waste Number(s): D039. Dispose of in accordance with U.S. EPA 40 CFR 262 for concentrations at or above the Regulatory level. Regulatory level- 0.7 mg/L. Dispose in accordance with all applicable regulations.

SECTION 14 TRANSPORT INFORMATION

U.S. DOT 49 CFR 172.101:
PROPER SHIPPING NAME: Tetrachloroethylene
ID NUMBER: UN1897
HAZARD CLASS OR DIVISION: 6.1
PACKING GROUP: III
LABELING REQUIREMENTS: 6.1
MARINE POLLUTANT: TETRACHLOROETHYLENE
CANADIAN TRANSPORTATION OF DANGEROUS GOODS:
SHIPPING NAME: TETRACHLOROETHYLENE
UN NUMBER: UN1897
CLASS: 6.1
PACKING GROUP/RISK GROUP: III

SECTION 15 REGULATORY INFORMATION

U.S. REGULATIONS:
CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):
TETRACHLOROETHYLENE (PERCHLOROETHYLENE): 100 LBS RQ
SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.30): Not regulated.
SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.40): Not regulated.
SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370.21):
ACUTE: Yes
CHRONIC: Yes
FIRE: No
REACTIVE: No
SUDDEN RELEASE: No
SARA TITLE III SECTION 313 (40 CFR 372.65):
TETRACHLOROETHYLENE (PERCHLOROETHYLENE)
OSHA PROCESS SAFETY (29CFR1910.119): Not regulated.
NATIONAL INVENTORY STATUS:
U.S. INVENTORY (TSCA): Listed on inventory.
TSCA 12(b) EXPORT NOTIFICATION: Not listed.

ATTACHMENT 7
DAILY TAILGATE SAFETY MEETING LOG

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Daily Tailgate Safety Meeting Log
(to be completed on site)

Site Name _____
Location _____
Weather _____
Topics _____

_____

_____

_____

_____

_____

Employee Names:	Signatures

Signature of SS (or designee) Date

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ATTACHMENT 8
FIRST-AID EQUIPMENT LIST

First-aid Equipment List

- First-Aid Handbook
- A Standard First-Aid Kit, containing:
- Compresses
- Gauze and gauze roller bandage
- Triangular bandages
- Eye dressing packet
- Ammonia inhalant
- Salt or other emetic
- Band aids
- Tape
- Scissors
- Tweezers
- First-aid cream
- Antiseptic wipes
- Instant cold packs
- Eye irrigation solution
- Burn cream
- Sterile gloves
- Rescue blanket
- Non-aspirin pain reliever

Safety Equipment List

- Electrolyte replacement drink, stored in a clean area and used to prevent heat stress
- Type ABC multipurpose fire extinguisher
- Portable emergency eyewash station

ATTACHMENT 9
ACCIDENT REPORT FORM

Accident Report Form

Name of Reporter: _____Date:_____

Name(s) of Victim(s): _____Date of Accident:_____

Witnesses: _____Time of Accident:_____

Location on Accident:_____

Description of Accident:_____

_____

_____

_____

_____

Cause of Accident:_____

_____

_____

_____

_____

Persons/Agencies Notified	Time	Time of Arrival (if Applicable)
_____	____	_____
_____	____	_____
_____	____	_____
_____	____	_____

Corrective Actions:_____

_____

_____

_____

Duration of Accident:_____

Comments:_____

_____

_____

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ATTACHMENT 10
HOSPITAL DIRECTIONS AND LOCATION MAP

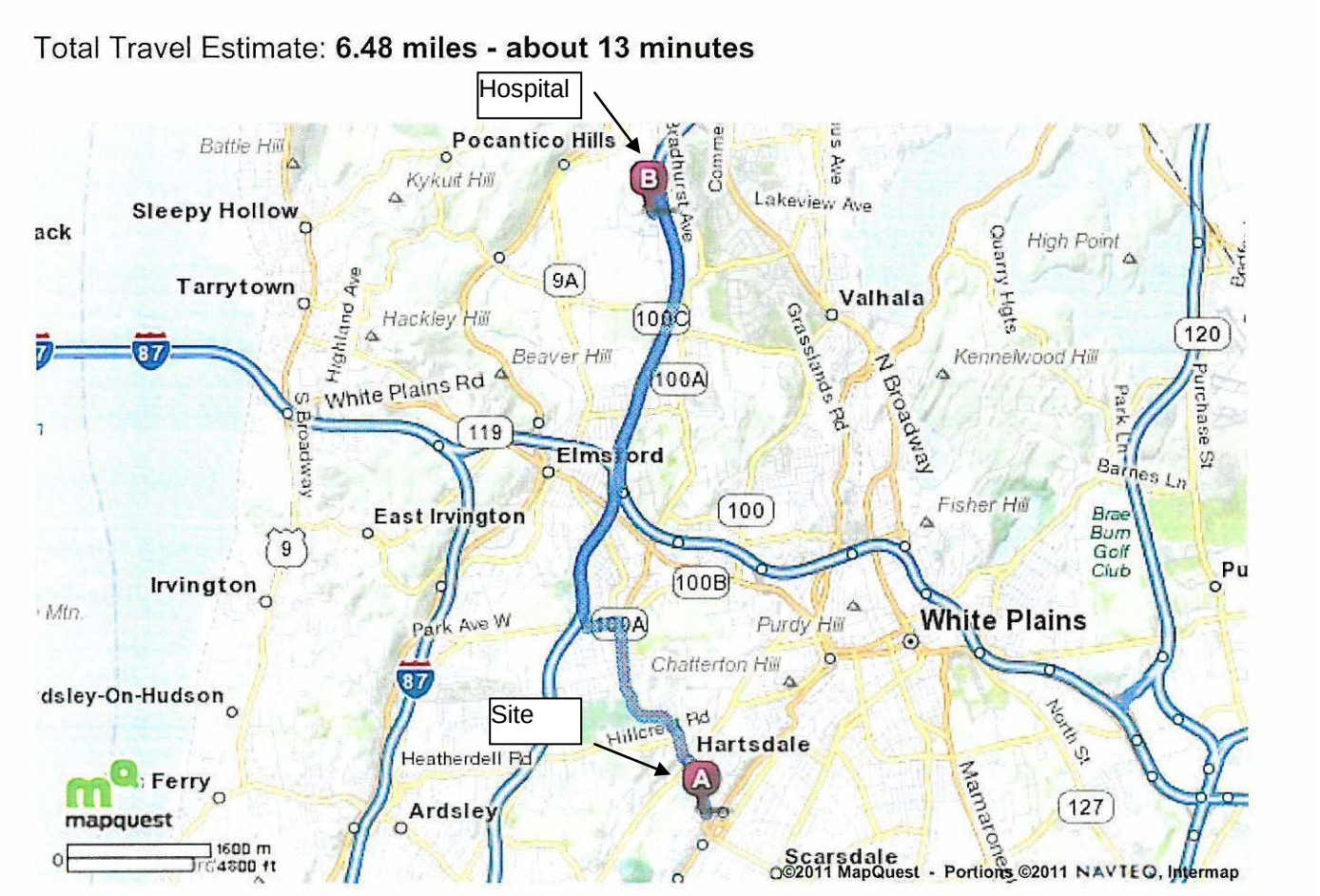
HOSPITAL DIRECTIONS AND LOCATION MAP

FROM: 212 E. Hartsdale Avenue, Hartsdale, NY

Hospital Address and Emergency Phone #'s
Westchester Medical Center
100 Woods Rd., Valhalla, NY 10595 (914) 7493-7000

Police - 911

Fire - 911



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mapquest

Notes

Route from Aristocrat Dry Cleaners to Hospital

Trip to:
100 Woods Rd
Valhalla, NY 10595-1530
6.48 miles
13 minutes

		Miles Per Section	Miles Driven
A	**212 E Hartsdale Ave** Hartsdale, NY 10530-3505		
	1. Start out going NORTH on E HARTSDALE AVE toward ROCKLEDGE RD.	**Go 2.0 Mi**	2.0 mi
	2. Turn LEFT onto RT-100B / DOBBS FERRY RD. *RT-100B is 0.1 miles past W HARTSDALE RD*	**Go 0.3 Mi**	2.2 mi
	3. Merge onto SPRAIN BROOK PKWY N. *If you are on DOBBS FERRY RD and reach WESTCHESTER VIEW LN you've gone about 0.6 miles too far*	**Go 3.8 Mi**	6.0 mi
EXIT	4. Take the HOSPITAL RD exit toward RT-100 N / HAWTHORNE.	**Go 0.2 Mi**	6.2 mi
	5. Turn LEFT onto BRADHURST ENTRANCE NORTH RD / HOSPITAL RD / CR-301.	**Go 0.1 Mi**	6.3 mi
	6. Turn LEFT onto WOODS RD. *If you are on HOSPITAL RD and reach WESTVIEW DR you've gone about 0.2 miles too far*	**Go 0.2 Mi**	6.5 mi
	7. 100 WOODS RD is on the RIGHT. *If you reach EMERGENCY DR you've gone about 0.2 miles too far*		6.5 mi
B	**100 Woods Rd** Valhalla, NY 10595-1530	**6.5 mi**	**6.5 mi**

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