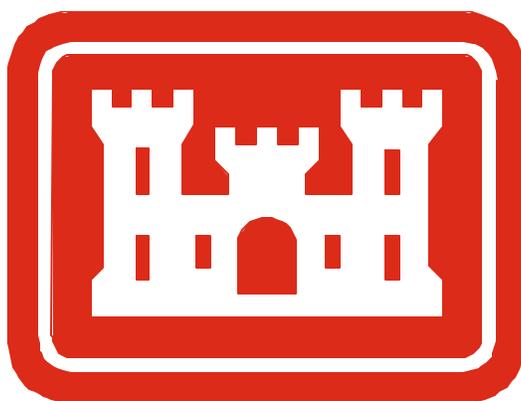


FINAL

**PROGRAMMATIC HEALTH AND SAFETY
PLAN FOR DNSC SITE
CHARACTERIZATION PROJECTS**

PREPARED FOR:



U.S. ARMY CORPS OF ENGINEERS

Contract No. DACA87 - 02 - D - 0005

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PREPARED BY:

PARSONS

JULY 2003

Final:

**PROGRAMMATIC HEALTH AND SAFETY PLAN
FOR DNSC SITE CHARACTERIZATION PROJECTS**

Prepared For:

U. S. Army Corps of Engineers

Huntsville Center

Prepared By:

Parsons

290 Elwood Davis Road, Suite 312

Liverpool, New York 13088

Phone: (315) 451-9560

Fax: (315) 451-9570

JULY 2003

SECTION 1

INTRODUCTION

1.1 PURPOSE

1.1.1 The purpose of this Programmatic Health and Safety Plan (PHASP) is to establish personnel protection standards and mandatory safety practices and procedures for the program of site characterization projects at Defense National Stockpile Center (DNSC) depots. This plan assigns responsibilities, establishes standard operating procedures, and sets forth plans for contingencies that may arise while site characterization projects are ongoing.

1.1.2 This PHASP provides general guidance for making decisions during field activities. The following sections address responsibilities and work procedures, physical and chemical risks, emergency procedures, and levels of required personal protection. Site-specific information such as a project description and site history, a list of emergency contacts, and necessary health and safety equipment will be presented as site-specific health plan annexes at the time each project is executed. Attached to this plan are appendices that address specific activities or safety and health procedures that may be required for conduct of this program.

1.2 APPLICABILITY

1.2.1 The plan provisions are mandatory for on-site activities undertaken at all DNSC sites by Parsons personnel. All site activities should comply with the provisions of the Corporate Health and Safety (H&S) Policies and Procedures Manual and applicable standards in 29 CFR Parts 1910 and 1926. United States Army Corps of Engineers (USACE) Health and Safety Requirements Manual EM 385-1-1 also applies to this PHASP. This plan may be supplemented by site-specific health plan annexes, in the event contaminants of concern (COCs) or planned site activities are not covered by the PHASP. All site-specific health plan annexes will be reviewed and approved by the Program Safety and Health Officer (PSHO).

1.2.2 All Parsons and subcontractor personnel working onsite must read this plan and sign the Plan Acceptance Form and applicable site-specific health plan annex prior to the start of the work at a site. The Plan Acceptance Form is included in Appendix B.

1.2.3 All Parsons and subcontractor personnel intending to conduct a site visit must complete the, "Abbreviated Accident Prevention Plan" (AAPP) form included in Appendix B. A "site visit" includes only non-intrusive activities such as field walk-through or drive-through, non-intrusive surveying (e.g. elevation measurements), data acquisition, records search, and visual inspection. Personnel must submit the completed form to the USACE Project Manager for approval at least three business days prior to the site visit.

SECTION 2

PROGRAM DESCRIPTION

2.1 DNSC SITE CHARACTERIZATION PROGRAM

The DNSC operates depots across the country for the purpose of stockpiling metallurgical ores and materials necessary for manufacturing products used in national defense. The primary materials stockpiled were: raw ore resources, processed ore stored in ingot form, and containerized material stored in warehouses. Most of the raw ore and processed ore were stored outdoors in piles that were not covered. These depots have operated since the 1940s but the need for these natural resources has diminished. The DNSC is in process of selling and consolidating these commodities, and closing their depots. To support these closures, DNSC is undertaking site characterization projects to assess the impacts the depot operations have had on the onsite and surrounding environment.

2.2 NATURE OF CONSTITUENTS AT DNSC DEPOTS

The following are the possible constituents of concern at DNSC depots:

- The most common constituents of concern (COCs) are metals and metallurgical ores: for example arsenic, chromium, lead, and mercury. The specific COCs will be identified in the site-specific health plan annex.
- A few sites may have low source activity ores (alpha and beta radiation may be present), due to storing material under a Nuclear Regulatory Commission (NRC) permit.
- A few sites have burn pits which were used for onsite destruction of wooden pallets and possibly other wastes. In addition, some sites had fire fighting training areas where different types of waste were used to ignite fires: printer ink, paint thinners, waste oil, petroleum products, and propylene glycol.
- Buried unexploded ordnance (UXO) has been discovered at Curtis Bay site during routine site improvements. An archive search report was prepared for this depot (USAESCH, 1993).

SECTION 3

PURPOSE AND SCOPE OF DNSC SITE CHARACTERIZATION PROGRAM

3.1 SCOPE OF WORK

The Preliminary Assessments previously conducted at many depots have indicated that contamination is possible at these depots. The scope of this program is to conduct site characterizations to confirm or deny the presence of contamination, and its extent, if possible. Major contaminants of concern are metals, volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs). The toxic nature of these materials make worker awareness/ understanding of safety and health concerns critical to the safe conduct of this program.

3.2 PURPOSE

During the site characterization projects, data will be collected to determine whether the depots have been contaminated after approximately 40 years of operation. The major components of the work that may be conducted include the following:

- Visually inspect the sites, and collect any additional relevant background data that may be locally available;
- Prepare planning documents for the field investigation that specifically address:
 - Management of the effort,
 - Chemical data, laboratory, and field sampling procedures,
 - Environmental protection,
 - Investigative derived waste (IDW) monitoring and disposal,
 - Site mobilization/demobilization and support,
 - Quality control,
 - Site Safety and Health (including site briefings, monitoring, decontamination, emergency response and site control),
 - Protective Action
- Conduct field operations including collecting soil, surface water, groundwater, and sediment samples for laboratory analysis.
- Evaluate site characterization results and prepare the report; and
- Provide project management.

SECTION 4

STAFF ORGANIZATION, QUALIFICATIONS, AND RESPONSIBILITIES

Parsons' policy is to provide its employees, subcontractors, and authorized visitors with information and safety procedures for site characterization projects. All personnel involved with this program will follow the safety and health procedures set forth in this plan.

4.1 SITE SAFETY AND HEALTH OFFICER

4.1.1 Parsons designates a site safety and health officer (SSHO) who defines, implements and enforces the site safety program and procedures. The SSHO conducts daily safety meetings and interfaces with other site representatives. The SSHO specifies level of personal protective equipment (PPE). The SSHO takes the following action(s) when appropriate:

- Orders the immediate shut-down of site activities in the case of a medical emergency or unsafe practice.
- Ensures protective clothing and equipment are properly stored and maintained.
- Ensures that the environmental and personnel monitoring operations are on-going and in accordance with this PHASP.
- Restricts visitors from areas of potential exposure to harmful substances.

4.1.2 The SSHO has responsibility for implementing and enforcing the site safety program and procedures. The SSHO will oversee any personnel monitoring and will decide (in conjunction with the PSHO – if necessary) when action levels have been reached which require more stringent personnel protection. The SSHO enforces the personal protective equipment to be used for various site activities. The SSHO will maintain contact with the Parsons PSHO and keep them informed of all significant Safety and Health incidents/decisions.

4.1.3 The SSHO will be responsible for safety inspection of the work sites, material and equipment. Safety and health deficiencies and the corrective action(s) taken will be recorded. All pertinent information will be recorded in the daily log.

4.1.4 The SSHO will be responsible for addressing Safety and Health issues at the project site. They have the authority to stop work if any operation or activity threatens worker safety or public health.

4.2 PROGRAM MANAGER

Mr. George Moreau is ultimately responsible for implementation and enforcement of the PHASP. He has the authority to access the required resources throughout Parsons and our

subcontractors to ensure compliance with the contract requirements: including operational, QA/QC, safety and health, and regulatory matters.

4.3 PROGRAM SAFETY AND HEALTH OFFICER

4.3.1 The PSHO will be responsible for oversight and direction to ensure full compliance with all Safety and Health requirements at each project site. The PSHO will oversee the Site Safety and Health Officer and interface as required with other project and Corporate personnel.

4.3.2 The PSHO will approve the assignment of each SSHO, and the SSHO will be identified in each site-specific health plan annex. The PSHO is William Bradford, located in Parsons' Syracuse, New York office.

4.4 EMPLOYEE SAFETY RESPONSIBILITY

Each employee is responsible for his own safety as well as the safety of those around him. The employee shall use all equipment provided in a safe and responsible manner as directed by the SSHO. Personnel will follow the policies set forth in the Parsons Safety and Health procedures relevant to site operations which are included within or attached to this PHASP or site-specific health plan annexes.

4.5 RESPONSIBLE PARSONS SAFETY AND HEALTH PERSONNEL

The following personnel are responsible for Safety and Health on site:

Project Manager	George Moreau, Parsons Syracuse, NY (315-451-9560)
Project Safety and Health Officer	William Bradford, Parsons Syracuse, NY (315-451-9560)
Field Manager/Site Safety and Health Officer	To Be Determined for each specific project
Radiation Safety Office	Ron McConn, Parsons Richland, WA (509-946-0415)

Table 4.1 provides a more detailed listing of responsibilities of personnel working on this project.

TABLE 4.1

**RESPONSIBILITIES OF PARSONS TEAM MEMBERS
DEFENSE NATIONAL STOCKPILE CENTER DEPOTS**

Title	General Description	Responsibilities
Project Manager	Reports to upper-level management. Has authority to direct response operations. Assumes total control over site activities.	<ul style="list-style-type: none"> • Prepares and organizes the background review of the situation, the Quality Assurance Plan, the PHASP, and the field team. • Obtains permission for site access and coordinates activities with appropriate officials. • Briefs the field teams on their specific assignments. • Uses the Project Safety and Health Officer to ensure that safety and health requirements are met. • Serves as a liaison with public officials.
Project Safety and Health Officer (PSHO)	Advises Project Manager on all aspects of H&S	<ul style="list-style-type: none"> • Provides technical support concerning Safety and Health issues. • Manages/oversees the preparation of the PHASP and site-specific health plan annexes. • Ensures that the Parsons Safety and Health protocols being followed conform with established industry protocols and standards. • Confirms each team member's suitability for work based on a physician's recommendation. • Conducts field Safety and Health audits to ensure PHASP conformance and Parsons policy compliance. • Certifies that all workers have proper training. • Reports all accidents to Parsons Corporate H&S Manager and investigates each accident or reportable incident.

TABLE 4.1 (Continued)

**RESPONSIBILITIES OF PARSONS TEAM MEMBERS
DEFENSE NATIONAL STOCKPILE CENTER DEPOTS**

Title	General Description	Responsibilities
Site Safety and Health Officer (SSHO)	Reports to the PSHO on all aspects of Safety and Health on site. Performs day-to-day H&S tasks. Stops work if any operation threatens worker or public health and/or safety.	<ul style="list-style-type: none"> • Specify level of PPE and follow PHASP for PPE to be used, and in case of any questions refer to PSHO. • Ensures that Parsons and all subcontractors perform personal inspections of protective equipment and clothing prior to, during, and after each use. • Ensures that Parson's and all subcontractors' protective clothing and equipment are properly stored and maintained. • Controls entry and exit at the Access Control Points. • Ensures personnel are monitored for signs of stress, such as cold exposure, heat stress, and fatigue. • Implements the PHASP and site-specific health plan annex. • Prior to each work event, conducts inspections to determine if the PHASP is being followed. • Knows emergency procedures, evacuation routes, and telephone numbers of the ambulance, local hospital, poison control center, fire department, and police department. • Coordinates decontamination procedures/provisions for medical care with USACE/DNSC. • Notifies USACE/DNSC of emergency conditions. • Ensures that all required equipment is available. • Advises medical personnel of potential exposures and consequences.

TABLE 4.1 (Continued)

**RESPONSIBILITIES OF PARSONS TEAM MEMBERS
DEFENSE NATIONAL STOCKPILE CENTER DEPOTS**

Title	General Description	Responsibilities
Site Safety and Health Officer (SSHO) – Continued		<ul style="list-style-type: none"> • Notifies emergency response personnel by telephone or radio in the event of an emergency. • Maintains log book for site workers and visitors. • Acts as spokesperson if OSHA inspector arrives on site. • Conducts initial on-site H&S briefing concerning pertinent H&S issues and new concerns. • Conducts daily tailgate briefings. • Reports all accidents or H&S incidents to the PSHO and USACE/DNSC.
Radiation Safety Officer (RSO)	Responsible for radiation safety during field activities	<ul style="list-style-type: none"> • Assures compliance with radiation protection standards • Determine radiation-monitoring procedures, prepares radiation training program, and selects appropriate PPE for ionizing radiation hazard.
Site Manager	Responsible for field team operations and safety.	<ul style="list-style-type: none"> • Manages field operations. • Oversees subcontractors' field operations. • Coordinates with the Site Safety and Health Officer in determining protection level. • Enforces site control. • Documents field activities. • Serves as liaison with public officials during field operations.
Field Team	The work party must consist of at least two people.	<ul style="list-style-type: none"> • Safely completes the on-site tasks. Both parties must have first aid/CPR training, unless site is within 5 minutes of a medical facility. • Complies with Site Safety and Health Plan. • Notifies SSHO/Site Manager or Supervisor of suspected unsafe conditions. • Inspects personal protective equipment prior to, during, and after each use.

SECTION 5

JOB HAZARD ANALYSIS

Physical and chemical hazards may present a risk to workers at DNSC's depots. The level of risk is dependent upon the type of work being done. Table 5.1 lists the potential routes of exposure and the symptoms for some of the most common, typical COCs at most depots. If there are COCs at a particular depot that are not covered by Table 5.1, then those COCs will be addressed in the site-specific health plan annex. Table 5.2 presents each activity, the associated hazards, and the control measures planned to prevent accident, injury or illness. Appendix E contains further details of activity-specific hazard analyses. The subsections that follow describe in greater detail the physical and chemical hazards associated with the planned activities at the DNSC's depots.

5.1 CHEMICAL HAZARD ASSESSMENT

5.1.1 Constituents of Concern

Following are the constituents of concern at DNSC sites:

- The most common constituents of concern are metals: for example, arsenic, chromium, lead, and mercury. The site-specific COCs will be identified in the site-specific health plan annexes.
- A few sites may have low source activity ores (alpha and beta radiation may be present) due to storing material under a Nuclear Regulatory Commission permit (Curtis Bay, Binghamton, Scotia). However, these ores are not known to be COCs at any sites.
- Binghamton and Somerville Depots had burn pits which were used for onsite destruction of wooden pallets and possible waste disposal. In addition, Binghamton Depot had fire fighting training areas where different types of waste were used to ignite fires: printer ink, paint thinners, waste oil, petroleum products, and propylene glycol.
- Buried unexploded ordnance (UXO) has been discovered at Curtis Bay site during routine site improvements. An archive search report was prepared for this depot (USAESCH, 1993).

5.1.2 Chemical Properties

Table 5.1 lists the potential routes of exposure and the symptoms for the most common COCs at most depots. The site-specific health plan annex will address COCs not covered by this plan. Other information is provided on Table 5.1, such as: Threshold Limit Values (TLVs), Permissible Exposure Limits (PELs), Immediately Dangerous to Life or Health (IDLH) values, physical properties, health effects, and immediately-required first aid treatment.

5.1.3 Material Safety Data Sheets (MSDSs)

Material Safety Data Sheets (MSDSs) for the most common COCs are provided in Appendix C. The Hazard Communication (HazCom) Program (29 CFR 1910.1200) has as its stated purpose: *"to ensure that the hazards of all chemicals produced or imported by chemical manufacturers or importers are evaluated and that information concerning their hazards are transmitted to affected employers and employees."*

5.2 IDENTIFICATION AND ANALYSIS OF PHYSICAL HAZARDS

5.2.1 Underground Utilities Hazards

The SSHO or designee, will use the "Drilling/Boring Mark Out Checklist," and follow the procedures described therein prior to advancing any borings or conducting excavation activities (Appendix B). The rupturing of underground utilities can have serious, possibly fatal, consequences.

5.2.2 Thunderstorms

Operation of heavy equipment and other fieldwork will cease if a thunderstorm is approaching the site, and/or during severe rainstorms. The SSHO will determine when these conditions exist, and a primary indicator will be the first observance of a lightning flash or thunder, regardless of the distance to the approaching storm. Weather reports on the radio will also provide advance warning of thunderstorms.

5.2.3 Slip, Trip, and Fall Hazards

5.2.3.1 Work sites may contain slip, trip, and fall hazards for site workers, such as:

- Holes, pits, or ditches;
- Slippery surfaces;
- Steep grades;
- Uneven grades;
- Sharp objects, such as nails, metal shards, and broken glass;
- Weather conditions, such as snow that will make surfaces slippery and obscure visibility.

5.2.3.2 Site personnel will be instructed to look for these potential safety hazards and immediately inform the SSHO or the Site Manager about any new hazards. If the hazard cannot be immediately removed, action must be taken to warn site workers about the hazard.

5.2.4 Motor Vehicles and Heavy Equipment

Working with large motor vehicles and heavy equipment such as drill rigs can be a major hazard. Injuries can result from equipment hitting or running over personnel, or overturning of vehicles. Vehicles and heavy equipment design and operation will be according to 29 CFR

Subpart 0, 1926.600 through 1926.602. The following precautions will be taken to help prevent injuries and accidents.

- Brakes, cables, hooks, light signals, fluid levels, steering, tires, and other safety devices will be checked and maintained in good working order throughout the duration of field activities.
- Large construction motor vehicles will not be backed up unless the vehicle has a reverse signal alarm audible above the surrounding noise level, backup warning lights, or the vehicle is backed up only when an observer signals it is safe to do so.
- Drill rig will be provided with necessary safety equipment including seat belts, roll-over protection, emergency shut-off during roll-over, backup warning lights, and audible alarms.
- Field support vehicles will be equipped with a first-aid kit and an appropriate fire extinguisher (Minimum 10-ABC).

5.2.5 Noise-Induced Hearing Loss

5.2.5.1 Planned activities will involve the use of heavy equipment, such as drilling rigs and generators. The unprotected exposure of site workers to this noise during activities can result in noise-induced hearing loss. The SSHO will ensure that either earmuffs or disposable foam earplugs are made available to, and used by, all personnel near operating heavy equipment, or other sources of high intensity noise.

5.2.5.2 Noise monitoring will be accomplished by field determination - if the whispered voice cannot be heard at a minimum three foot distance - hearing protection will be required. Where a noise hazard is determined to exist, or potentially may exist, the area will be marked with caution signs.

5.2.6 Ionizing Radiation

5.2.6.1 Ionizing radiation exposure can possibly occur at Binghamton, Scotia and Curtis Bay, due to the fact that these depots store material under NRC license. The components of ore which may contribute to radioisotopic activity include Uranium-238 and Thorium-232 which occur naturally, the daughter products of both these elements are α -particle and β -particle emitting isotopes. However, radioactive materials are not known to be contaminants of concern at any depot.

5.2.6.2 When personnel are present in the radioactive materials storage areas, the DNSC's Radiation Protection Plan must be followed. Additional radiation hazard information and personal protection and monitoring requirements will be addressed, if necessary due to those materials being considered contaminants of concern, in the site-specific health plan annexes.

5.2.7 Drilling Activities

5.2.7.1 Prior to any drilling activity, efforts will be made to determine whether underground installations will be encountered and, if so, where these installations are located.

Hard hats, safety glasses, and safety boots must as a minimum be worn within 50 feet of the drill rig. The Field Team Leader or Site Health and Safety Officer will provide constant on-site supervision of the drilling subcontractor to ensure that they are meeting the health and safety requirements. If deficiencies are noted, work will be stopped and corrective action will be taken (e.g., retrain, purchase additional safety equipment). Reports of health and safety deficiencies and the corrective action taken will be forwarded to the Project Manager. Appendix F provides a “Drilling Safety Guide”.

5.2.7.2 Employees may be working next to an active drill rig, so drilling safety applies to their activities. Other hazards include risk of slip, trip and fall, lacerations and contusions, noise-induced hearing loss from exposure to excessive noise from a drill rig or generator. Employees shall keep clothing dry with adequate rain gear. Inspect equipment to ensure that it is in proper working order.

5.2.7.3 Hazards associated with geoprobe drilling include contact with underground utilities, potential impact from falling objects, potential injury from moving equipment, and noise-induced hearing loss. Clear utilities with local contacts before advancing any geoprobe device into the soil. Inspect equipment to ensure that it is in proper working order and all guards are in place. Use earplugs, canal caps, or ear muffs for hearing protection while operating the geoprobe. If contaminated soils will be tracked with safety shoes, then overboots or boot covers shall be used to contain soils to the exclusion zone.

5.2.7.4 Chemical exposure could occur as drill cuttings are brought to the surface. Drill cuttings and split spoon samples will be screened with the appropriate equipment, as specified in the site-specific health plan annex. All personnel involved in drilling operations will wear leather or similar heavy work gloves as part of the standard Level D requirements. Drill cuttings may be containerized as they accumulate in order to control volatile emissions in the driller’s breathing zone and to prevent release of chemical vapors off site. Drillers and geologists on site within 50 feet of the drill rig shall start work in Level D PPE and will include use of hearing protection when the rig is operational.

5.3 ENVIRONMENTAL HAZARDS

5.3.1 Snakes

5.3.1.1 Venomous snakes that may be encountered include the following members of the “pit-viper” family: Copperheads, Rattlesnake species, and Water Moccasins. Illustrations of these snakes are shown in on Figure 5.1 and descriptions provided below:

- Copperhead (Figure 5.1a): These snakes are commonly found near water sources in wooded areas. Copperheads are generally less than three feet in length and are not particularly aggressive. Coloration ranges from golden brown to tan. These snakes have a banded pattern.
- Timber Rattlesnake (Figure 5.1b): These are large, not particularly aggressive snakes (up to nearly six feet) with yellow through or gray to black, with dark back and side blotches on front of body and blotches fused to form cross bands on rear of body.

These snakes have an unmarked head and a black tail. They can be found in many habitats, to include rocky hillsides, swampy areas, and canebrake thickets.

- Pigmy Rattlesnake (Figure 5.1c): These are very aggressive snakes usually about eighteen inches long. They are gray with brownish round markings. They are found in most habitats.
- Water Moccasin (Figure 5.1d): Also known as Cottonmouths, these snakes usually are encountered near water. They are black to greenish-brown and are up to five feet long.
- Diamondback Rattlesnake (Figure 5.1e); This is the largest snake native to North America, reaching 6 feet long. It has brown, black and beige diamond marks on its back, and lives in forests near brush, typically in old animal burrows. It is a good swimmer.
- Coral Snake (Figure 5.1f): This snake has a small slender body of 47 inches with a narrow head and round eye pupils. It is brightly colored with red, black, and yellow, with the red only touching the yellow, and it has a black nose. It has short fangs, but is shy and seldom aggressive unless startled, tormented, or hurt. It is found in pine woods and around ponds and lake borders on rotting logs, in piles of decaying vegetation, in heavily fallen leaf cover, and on old brush piles.
- Prairie Rattlesnake (Figure 5.1g): These snakes are 35-45 inches long with olive, greenish-gray, or greenish-brown bodies with brown oval markings on the back. They are found in prairies, pastures, prairie dog towns, and rock outcroppings and are often active during the day.

5.3.1.2 The best snakebite treatment is to avoid getting bitten. The following suggestions will help in this process:

- Learn to identify poisonous snakes – this will be reviewed during site-specific safety training. Regardless of type, all snakes should be avoided.
- Watch where you sit and place your hands and feet.
- Avoid rock piles, stacks of old boards, and brush in wooded areas. If movement is necessary, use a remote means to initially relocate the material. Prior to entering a heavily wooded or brush area, look and listen carefully.
- Never handle "dead" snakes; they may not be completely dead.
- Do not attempt to capture or kill *ANY* snakes.

5.3.1.3 A snake bite is usually characterized by extreme pain and swelling at the site of the bite; the presence of one or more puncture wounds created by the fangs; and a general skin discoloration. The manifestations of the bite include general weakness, rapid pulse, nausea and vomiting, shortness of breath, dimness of vision, tingling or numbness of the tongue, mouth or scalp, and shock.

5.3.1.4 Physical reactions are aggravated by acute fear, anxiety, the amount of venom injected and the speed of absorption of venom into the victim's circulation, the size of the victim, protection provided by clothing (including shoes and gloves), quick anti-venom therapy, and location of the bite.

5.3.1.5 First Aid – The rules to follow if someone is bitten by a snake are:

- DO NOT cut "Xs" over the bite area as this will intensify the effect of the venom.
- DO NOT apply suction to the wound since this has a minimal effective in removing venom.
- DO NOT apply a tourniquet since this will concentrate the venom and increase the amount of tissue damage in the immediate area.
- If possible, try to get a good look at the snake so it can be identified for proper selection of anti-venom.
- DO NOT allow the victim to run for help since running increases the heart rate and will increase the spread of the venom throughout the body.
- Calm, reassure and keep the victim calm and immobile. Do not delay evacuation.
- Have the victim hold the affected extremity lower than the body while waiting for medical assistance.
- Transport the victim to medical attention immediately.

5.3.1.6 An incision through the fang marks is not advisable; this procedure is too hazardous to underlying structures and at best removes only 20% of the venom. Do not use cold compresses, ice, dry ice, chemical ice packs, spray refrigerants, or other methods of cold therapy. Several other factors must be considered by the care giver:

- **Shock** - The victim should remain in a comfortable prone position and body temperature should be stabilized.
- **Breathing and heartbeat** - If breathing stops, mouth-to-mouth resuscitation should be administered. If breathing stops and there is no pulse, cardiopulmonary resuscitation (CPR) should be performed by a trained individual.
- **Cleaning the bitten area** - The bitten area may be washed with soap and water and blotted dry with sterile gauze. Dressings and bandages may be applied, but only for a short period of time.
- **Medicine to relieve the pain** - The victim should not be given alcohol, sedatives, or any medicine containing aspirin. Some painkillers may be given after consulting with a doctor or medical personnel for specific medications that may be used.
- **Snakebite Kits** - Kits should be kept accessible for all outings in primitive areas or areas known or suspected to be snake infested.

5.3.1.7 Identification Features -- Non-poisonous snakes are often erroneously identified as poisonous. The features identified below will assist in properly identifying a snake as poisonous or non-poisonous.

Snake Identification Features

Feature	Poisonous	Non-Poisonous
Eye Pupils	Elliptical, or cat-like	Round
Sensing Pits	Pit between the eyelids and nostrils	No pit between the eyelids and nostrils
Teeth	Two enlarged teeth (fangs) in front of the upper jaw	All teeth are approximately the same size
Scales	Form a single row on the underside and below the tail	Arranged in a double row on the underside of the tail
Head	Head much wider than the neck	Head slightly wider than the neck
Tail	Single anal plate	Divided anal plate

5.3.2 Ticks

5.3.2.1 All ticks are of concern, but deer ticks are of particular concern. A deer tick may carry Lyme disease, an illness caused by a bacterium transmitted by the tick. The deer tick is about the size of a sesame seed, as distinguished from the “dog tick”, which is significantly larger. The deer tick is principally found in grassy and wooded areas. Not all ticks are infected with the bacterium. When an infected tick bites, the bacterium is passed into the bloodstream of the host, where it multiplies. The various stages and symptoms of the disease are well recognized and if detected early, can be treated with antibiotics.

5.3.2.2 Removal of ticks is best-accomplished using small tweezers. Do not squeeze the tick’s body. Grasp it where the mouthparts enter the skin and tug gently, but firmly, until it releases its hold on the skin. Save the tick in a jar labeled with the date, body location of the bite, and the place where it may have been acquired. Wipe the bite thoroughly with an antiseptic and seek medical attention as soon as possible.

5.3.3 Insect Bites/Stings

5.3.3.1 Mild insect bites should be treated by applying a baking soda paste or ice wrapped in a wet cloth. Bee stingers should be gently scraped off the skin, working from the side of the sting.

5.3.3.2 Persons who are believed to have been bitten by a brown recluse or black widow spider (Figure 5.1) should be immediately transported to a hospital. The spider should be collected for confirmation of the species. Reactions to a brown recluse spider bite include mild to severe pain within two to eight hours and a star shaped area around the bite within three to four days. Reactions to a black widow spider include intense pain at the site of the bite after approximately 15 to 60 minutes, followed by profuse sweating, rigid abdominal muscles, muscle spasms, breathing difficulty, slurred speech, poor coordination, dilated pupils, and generalized swelling of face and extremities.

5.3.3.3 If insect bites become red or inflamed or symptoms such as nausea, dizziness, shortness of breath, etc., appear, medical care will be sought. Immediate care is needed if a person is allergic to insect bites/stings. Personnel with insect allergies should inform the SSHO.

5.3.3.4 If an allergic person receives a spider bite or insect bite/sting, medical attention should be sought immediately, the victim should be kept calm, and the individual's vital signs should be monitored frequently. Rescue breathing should be given if necessary to supply oxygen to the victim.

5.3.4 Poisonous Plants

5.3.4.1 The majority of skin reactions following contact with offending plants are allergic in nature and are characterized by:

- General symptoms of headache and fever;
- Itching;
- Redness; and
- A rash.

5.3.4.2 Some of the most common and severe allergic reactions result from contact with plants of the poison ivy group, including poison oak and poison sumac. Such plants produce a severe rash characterized by redness, blisters, swelling, and intense burning and itching. The victim also may develop a high fever and may be very ill. Ordinarily, the rash begins within a few hours after exposure, but it may be delayed for 24 to 48 hours.

5.3.4.3 The most distinctive features of poison ivy and poison oak are their leaves, which are composed of three leaflets each. In certain seasons, both plants also have greenish-white flowers and berries that grow in clusters.

5.3.4.4 A person experiencing symptoms of poison ivy or poison oak should remove contaminated clothing; wash all exposed areas thoroughly with soap and water. Apply calamine or other poison ivy/oak lotion if the rash is mild. Seek medical advice if a severe reaction occurs, or if there is a known history of previous sensitivity. Oak and ivy cleanser can be used after site work or after potential exposure to reduce chances of irritation.

5.3.5 Bloodborne Pathogens

5.3.5.1 Bloodborne pathogens enter the human body and blood circulation system through punctures, cuts or abrasions of the skin or mucous membranes. They are not transmitted through ingestion (swallowing), through the lungs (breathing), or by contact with whole, healthy skin. However, under the principle of universal precautions (see below) all blood should be considered infectious, and all skin and mucous membranes should be considered to have possible points of entry for pathogens.

5.3.5.2 There are a number of infections that are transmitted by insects and other arthropods where the infection cycle includes the human blood system. Examples include malaria and Lyme disease, which are transmitted by mosquitoes and ticks, respectively. These diseases are serious, and the possibility for infection should be considered in planning field operations in areas where these disease vectors are present.

5.3.5.3 These diseases cannot be transmitted through personal contact with human blood, and are not covered by the OSHA *Bloodborne Pathogen Standard*.

5.3.5.4 Potential bloodborne pathogen exposures include:

- Contact with contaminated medical equipment or medical waste or sharps
- Medical emergency response operations such as administering first aid or CPR
- Contact with human wastes such as domestic sewage

5.3.5.5 Site personnel with first-aid and CPR responsibilities have received bloodborne pathogens briefing.

TABLE 5.1

PRIMARY CONSTITUENTS AT DNSC DEPOTS PEL, TLVS, IDLH AND ROUTE OF EXPOSURE

Cont.	PEL mg/m³	TLV mg/m³	IDLH mg/m³	Physical State Appearance	Exposure Route	Symptoms	First Aid
Arsenic	0.01	0.01	5	Silver gray or tin-white odorless solid	Inhalation, ingestion, dermal contact	Ulceration of nasal septum, skin irritation, GI disturbance, nervous system degeneration, respiratory irritation, carcinogen	Irrigate immediately; prompt soap wash; respiratory support; immediate medical attention
Chromium	1.0	0.5	250	Blue-white to steely gray lustrous metal, brittle, hard, odorless solid	Can be absorbed into the body by inhalation of its aerosol and by ingestion	Irritate eyes, skin, lung fiber (histologic)	Eyes, skin, Respiratory system
Lead	0.05	0.05	100	Heavy ductile soft gray solid	Ingestion, dermal contact, ingestion	Weak, lass, insomnia; facial pallor; pale eyes; anorexia, low weight; constipation, abdominal pain; anemia; gingival lead line; encephalopathy; kidney disease; irritate eyes; hypotension	Eyes, GI tract, CNS, kidneys, blood, gingival tissues
Mercury	0.1	0.025	10	Silver-white heavy, odorless liquid	Inhalation, absorption, ingestion, dermal contact	Irritate eyes, skin; cough, chest pain, bronchitis; tremor; insomnia, irritability, indecision, head fatigue, weakness; stomatitis; anorexia, low weight	Eyes, Skin, CNS, PNS, kidneys
Benzene	1 ppm ST5 ppm		500 ppm	Colorless to light yellow liquid, aromatic odor	Inhalation, absorption, ingestion, dermal contact	Irritate eyes, skin, respiratory system, skin; cough, wheezing, pneumonitis; head, dizziness, CNS depression, nausea, vomit, kidney, liver, and spleen damage.	Irrigate immediately, immediate soap wash, respiratory support, immediate medical attention.
Gasoline products	-	300 ppm	-	Clear liquid with a characteristic odor	Inhalation, absorption, ingestion, congestion	Irritate eyes, skin, mucous membrane; head, fatigue, blurred vision, slurred speech, convulsion; chemical pneumonitis (aspiration); possible liver, kidney damage; carcinogen	Eyes, skin, respiratory system, CNS, liver, kidneys
Petroleum distillate	2000 ppm	300 ppm	-	Colorless liquid with a gasoline-like odor	Inhalation, ingestion, dermal contact	Irritate eyes, nose, throat; dizziness, drowsiness, head, nausea; dry cracked skin; chemical pneumonitis (aspiration)	Irrigate immediately, soap wash prompt, respiratory support, immediately medical attention

TABLE 5.2

**HAZARD ANALYSIS BY SITE ACTIVITY
 DEFENSE NATIONAL STOCKPILE CENTER DEPOT**

Activity	Hazards	Control Measures
Manual sample collection using hand auger, and sledge hammer etc.	Environmental Hazards: <ul style="list-style-type: none"> • Storms - Tornadoes and Thunderstorms • Heat and Cold Injuries • Snakes/Spiders/Poisonous Plants 	SSHO to provide training at start of job as to hazard(s), avoidance of hazard or injury.
	Slips, Trips and Falls, Ordnance Items (i.e. Curtis Bay)	SSHO to provide training at start of job as to hazard(s), avoidance of hazard or injury. Escort and Surface Clearance by explosive ordnance disposal (EOD) Specialist; No intrusive activities (e.g., putting stake into ground) without EOD clearance. To be covered in detail in site-specific health plan annex for Curtis Bay.
	Ionizing radiation exposure	Follow DNSC's Radiation Protection Plan. Radiological screening with Geiger Mueller Counter/Eberline HP-260 prior to sampling, if necessary. To be covered in detail in site-specific health plan annex, as necessary.

TABLE 5.2 (Continued)

**HAZARD ANALYSIS BY SITE ACTIVITY
 DEFENSE NATIONAL STOCKPILE CENTER DEPOT**

Activity	Hazards	Control Measures
Mobilize and Construct Temporary Facilities	Slips, Trips and Falls Safety Issues Associated with Construction: <ul style="list-style-type: none"> • Vehicle and Heavy Equipment Operation • Materials Handling • Electrical Hazards • Noise • Pressurized Cylinders Environmental Hazards Ordnance Items	SSHO to provide training at start of job as to hazard(s), avoidance of hazard or injury. Follow procedures outlined in the Appendices of PHASP. SSHO provides Education/Training at start of job/activity and SSHO monitors compliance. SSHO to provide training at start of job as to hazard(s), avoidance of hazard or injury. No drilling/boring activities are permitted without utility clearance; and geophysical survey and EOD clearance (latter to be covered in site-specific health plan annex).

Figure 5.1
Snake Illustrations



5.1a – Copperhead



5.1b – Timber Rattlesnake



5.1c – Pigmy Rattlesnake



5.1d – Water Moccasin

Figure 5.1 continued
Snake Illustrations



5.1e – Diamondback Rattlesnake



5.1f – Coral Snake



5.1g – Prairie Rattlesnake

Figure 5.1 (Continued)
Arachnid Illustrations



Black Widow



Brown Recluse

SECTION 6

ACCIDENT PREVENTION

6.1 INTRODUCTION

6.1.1 All field personnel will receive site-specific Safety and Health briefing before starting any site activities. On a day-to-day basis, individual personnel should watch for indicators of potentially hazardous situations and for signs and symptoms in themselves and others that warn of hazardous conditions and exposures. Emergencies can be averted by rapid recognition of dangerous situations. Before assigning daily tasks, tailgate safety meetings will be held.

6.1.2 The SSHO supervises the field team to ensure they are meeting safety and health requirements. If deficiencies are noted, work is stopped and corrective action is taken (e.g., obtain, purchase additional safety equipment). Reports of Safety and health deficiencies and the corrective action taken are forwarded to the Project Manager and PSHO.

6.2 ACCIDENT PREVENTION PROGRAM

6.2.1 Parsons has a policy of compliance with all governing safety standards and regulations, and a safety performance goal of zero accidents, operational mishaps, and injuries/disease. Accident prevention is a key program element if we are to achieve compliance and strive towards our ultimate goal of zero incidents. The accident prevention program which will be implemented at DNSC depots will include:

- Daily safety and health inspections by the SSHO.
- Initial site-specific and daily tailgate safety and health briefing will be provided by the SSHO and/or the Safety Officer from the UXO subcontractor (specific to Curtis Bay depot). The topics for tailgate briefings will include:
 1. Recent safety violations/problems or incidents;
 2. Seasonal topics (e.g., heat/cold injuries); and
 3. Review of PHASP elements that inspections have indicated are needed.
- Inspection dates/times, inspectors' names and results of inspections will be recorded in the SSHO's logbook.
- Sign-in sheets with dates/topics of tailgate briefing will be completed for each session. The SSHO will record each session in the logbook and file the sign-in sheets in project files.
- Reporting of safety hazards by site personnel.

- Aggressive reporting and follow-up on all safety violations, accidents, injuries, and illnesses. Forms for this reporting include those found in Appendix B and the SSHO's daily logbook.
- Compliance with the PHASP for all personnel working at DNSC depots.

6.2.2 Personnel responsible for implementing this accident prevention program are those previously identified in Table 4.1.

6.3 SURVEILLANCE OF SUBCONTRACTOR SAFETY

6.3.1 Requirements

6.3.1.1 Achieving a high standard of safety where human life or property is involved requires full and complete compliance with and acceptance of requirements on the manner in which work is performed. All personnel, whether employers or employees, must share responsibility in performing all work in such a manner and under such conditions as to preclude or minimize the possibility of damage to property or injury to themselves or others.

6.3.1.2 Subcontractors are responsible for their own safety and health programs and for their agents and employees, regardless of whether the prime contractor employs a safety and health representative at the site. Safety equipment and safeguards suitable to the occupational hazards involved and conforming to the safety regulations at the work site must be furnished by each subcontractor (when not furnished by Parsons).

6.3.1.3 In the event of an apparent violation of a safety standard, Parsons' SSHO will call the violation to the subcontractor's attention and request that the situation be corrected. The seriousness of the violation dictates the abatement period allowed. In the event of imminent danger to life, limb, or property, the Parsons' SSHO will insist that the portion of the work affected be stopped until the situation is corrected to minimize the hazards relative to the specific area of work. The SSHO will inform the subcontractor at the time a violation is noted, using one of the following methods.

6.3.2 Non-Serious Violation

A non-serious violation is defined as a situation where an accident or an occupational illness resulting from a deviation from standard probably would not cause death or serious physical harm, but would have a direct or immediate relationship to the safety or health of employees. For incidents that are considered non-serious, the subcontractor will be verbally advised and the violation entered in the SSHO's daily log and the project file.

6.3.3 Serious Violation

A serious violation is defined as having a high probability of death or serious physical harm to employees resulting from a condition that exists on the job site. In matters that the SSHO or the Site Manager deems serious, the subcontractor will be informed both verbally and by means of a violation form (Figure 6.1) citing the regulatory standard violated.

6.3.4 Imminent Danger Violation

Imminent danger is defined as any condition or practice that could reasonably be expected to cause death or serious physical harm. In cases that the SSHO feels are immediately dangerous to life, limb, or property, the SSHO will insist that the subcontractor cease site activities until the hazardous conditions are minimized. In such cases, the SSHO will issue a written statement of the standard or standards violated (Figure 6.1 or a letter) and approve acceptable activities to minimize the hazards specific to the incident.

6.4 TRAINING

Training at the site will include a site-specific initial briefing session prior to commencing activities at the site to cover all aspects of this PHASP, and daily "tailgate" briefings prior to beginning work each day.

6.5 DAILY SAFETY INSPECTIONS

The SSHO will conduct daily inspections of sites and site operations. The results of the inspections will be recorded in the logbook and be provided to the PSHO.

6.6 TRAFFIC CONTROL

An area near each depot will be designated for parking. Personnel will follow all local vehicular laws, especially posted speed-limits.

6.7 SITE HOUSEKEEPING

Personnel will maintain the site facilities in a clean, neat, and sanitary condition at all times. Each depot has office facilities that will be used for personal hygiene and have sources of drinking water to guard against heat stress.

6.8 FIRE PREVENTION AND PROTECTION

Explosions and fires not only pose the obvious hazards of intense heat, open flames, smoke inhalation, and flying objects, but may also cause the release of toxic chemicals into the environment. Such releases can threaten both personnel on-site and members of the general public living or working nearby. Site personnel involved with potentially flammable material or operations will follow the guidelines listed below to prevent fires and explosions:

- Prior to initiation of site activities involving explosive/flammable materials, all potential ignition sources will be removed or extinguished;
- Dilution or induced ventilation may be used to decrease the airborne concentration of explosive/flammable atmospheres;
- Smoking is prohibited at work sites, or in the vicinity of, operations which may present a fire hazard, and the area will be conspicuously posted with signs stating "No Smoking or Open Flame Within 50 Feet";

- Flammable and/or combustible liquids must be handled only in approved, properly labeled metal safety cans equipped with flash arresters and self-closing lids;
- The motors of all equipment being fueled will be shut off during the fueling operations;

The following safe work practices will be used to protect against fires:

- At least one portable fire extinguisher having a rating of not less than 20#ABC will be located at each work site.

6.9 FALL PROTECTION

6.9.1 Activities to be performed at DNSC depots are not expected to require fall protection. However, a body harness with lanyard will be worn by any personnel working at risk of falling more than 6 feet. The lanyard will be adjusted to limit free-fall to no more than 6 feet. Lanyards must be secured to strong structural components or static lines.

6.9.2 If lanyards and safety harnesses are deemed impractical, safety nets must be provided.

6.10 SAFE CLEARANCE

6.10.1 Extra precautions will be taken when using drill rigs near overhead electrical lines. The minimum clearance between overhead electrical lines of 50 kilovolts (kV) or less and any extended portion (e.g., boom/bucket on backhoe) is 10 feet. For lines rated over 50 kV, the minimum clearance between the line and any part of the heavy equipment is 10 feet plus 0.4 inches for each kV over 50 kV. The SSHO is responsible for contacting the UFPO to determine the rated voltage.

6.11 SEVERE WEATHER

6.11.1 In the event of severe weather: high winds, electrical storms, tornadoes, extremely hot weather (>100°F), or extremely cold weather (<0°F), it may be necessary to cease operations and evacuate the site. The SSHO will be responsible for monitoring the weather. Should severe weather threaten, the SSHO is responsible for deciding (in conjunction with the Depot Manager) if site operations should cease.

6.11.2 All operations will cease if the SSHO determines that a thunderstorm is approaching the site.

6.12 ACCIDENT INVESTIGATION AND REPORTING

6.12.1 In the event an accident occurs at the site, the SSHO will investigate the accident after all emergency actions have been taken. The Parsons accident form (see Appendix B) will be filled out by the SSHO and submitted to the Parsons PSHO.

6.12.2 An accident will be reported immediately to the DNSC/USACE if any of the following occur as a result of an accident,

- Fatal injury;
- Injury to three or more persons who are admitted to the hospital;
- Property damage in the amount of \$1,000 or more; or
- May result in unfavorable criticism of the DNSC/USACE.

Other lost-time or OSHA reportable accidents will be reported to the DNSC/USACE within seven working days.

6.13 HAZARD REDUCTION PROGRAM

As identified and described in paragraph 6.1, the Hazard Reduction Program for work at DNSC depots includes:

- Education of site personnel as to the hazards and measures to minimize/prevent these hazards;
- Inspections to determine compliance with required PHASP and general safety provisions – with reporting and retraining as needed; and
- Reporting and follow-up on safety violations, accidents, injuries and illnesses.

FIGURE 6.1

NOTIFICATION OF VIOLATION OF SAFETY POLICIES

PARSONS			
SUBJECT: SAFETY/HEALTH VIOLATION		Job No. _____	
		Location: _____	
In the interest of safety and health, the following violation/s were noted:			
Contractor _____			
Date _____		Date complied with _____	
Representative _____			
Repeat Violation Yes <input type="checkbox"/> No <input type="checkbox"/>			
Violation:			
Recommendation:			
Abatement Period _____			
Standard Source _____			
OSHA	<input type="checkbox"/>	STATE	<input type="checkbox"/>
LOCAL	<input type="checkbox"/>	ANSI	<input type="checkbox"/>
OTHER	<input type="checkbox"/>	NFPA	<input type="checkbox"/>
SUBCONTRACTOR			

SECTION 7

PERSONAL PROTECTIVE EQUIPMENT

7.1 INTRODUCTION

Parsons staff will work onsite during sampling work. As site conditions change, the SSHO will evaluate the need to take mitigation measures and/or upgrade the level of protection. Such a condition would exist if workers detected sustained concentrations of a chemical exceeding established action levels. The SSHO may also implement other actions outlined in the Emergency Response Plan, as necessary.

7.2 LEVELS OF PROTECTION

Different activities at the site will require different levels of protection. The possible levels of protection to be used at the site are outlined below. Table 7.1 lists activities and site conditions and the associated levels of PPE. If workers detect contaminants exceeding the action levels listed in Table 7.1, they will consider implementing engineering controls prior to upgrading PPE level. Such controls include misting soil with water and/or employing fans to dissipate concentrations. Workers will upgrade the level of PPE at the direction of the SSHO or at their own discretion. Engineering controls may also be employed in addition to PPE upgrade, if the SSHO deems it appropriate.

7.2.1 Level D

The minimum level of protection required of all personnel at the site is Level D. The following is Level D protection:

- Short or long-sleeve shirt, long trousers, or cotton overalls;
- Sturdy work boots/shoes, steel toe when working around heavy equipment. Geophysical survey personnel will not use steel toe boots;
- Safety glasses with side shields or goggles when an eye hazard (e.g., splash hazard) exists;
- Hard hat, when a head hazard exists;
- Leather or canvas work gloves when a scrape/cut hazard exists;
- Hearing protection, when working around drilling rigs or powered hand tools; and
- Latex inner, and nitrile outer gloves during sampling activities.

7.2.2 Level C

Level C protection will consist of Level D protection, plus additional components described here. For locations with confirmed presence of radioactive contaminants, a Tyvek

suit and a fullface Air Purifying Respirator with P-100 cartridges will be used. For locations with confirmed mercury vapors Air Purifying Respirator with mercury cartridges will be used. For locations with VOCs exceeding action levels, an Air Purifying Respirator with combination organic vapor and P-100 cartridges will be used.

7.2.3 OSHA Requirements for Personal Protective Equipment

All personal protective equipment used during the course of site activities must meet the following OSHA standards:

Type of Protection	Regulation
Eye and Face	29 CFR 1910.133 29 CFR 1926.102
Respiratory	29 CFR 1910.134 29 CFR 1926.103
Head	29 CFR 1910.135 29 CFR 1926.100
Foot	29 CFR 1910.136 29 CFR 1926.96

Both the respirator and cartridges specified for use in Level C protection must be fit-tested prior to use in accordance with OSHA regulations (29 CFR 1910.1025; 29 CFR 1910.134).

Air purifying respirators cannot be worn under the following conditions:

- Oxygen deficiency
- IDLH concentrations
- High relative humidity
- If contaminant levels exceed designated use concentrations.

**TABLE 7.1
SITE ACTIVITIES AND REQUIRED LEVELS OF PROTECTION**

Site	Activities/Conditions	Level(s) of Protection	Notes
All DNSC depots.	Routine environmental sampling.	Level D	Maintain “no visible dust” conditions by wetting down areas as necessary where metals contamination is suspected to exist. If the PSHO or SSHO believe that site-specific information indicates dust monitoring is necessary, that requirement will be identified in the site-specific annex.
Depots with documented or suspected petroleum product contamination (to be identified in site-specific health plan annex).	If PID records total VOC concentration ≥ 1 ppm for 5 minutes, a Draeger tube will then be used to monitor the concentration of benzene. Upgrade to Level C if VOC concentration by PID exceeds 10 ppm for 5 minutes and/or benzene concentration exceeds 1 ppm for 5 minutes, as determined by Draeger tube. Monitor continuously during intrusive activities. Downgrade from level C when benzene concentrations < 1.0 ppm and total VOCs <10 ppm	Level C	Respiratory protection using Air Purifying Respirator with organic vapor/P-100 cartridges will be used. Workers will retreat upwind if benzene concentrations exceed 50ppm, and/or other VOC concentrations exceed 100 ppm.
Depots where low source activity materials are suspected to be contaminants of concern (to be identified in site-specific health plan annex).	Ionizing radiation is detected 2X background levels using Eberline H-260 with pancake probe, or equivalent. Monitoring will be conducted continuously when work is conducted in areas known or suspected to contain low source activity contaminants. Downgrade when level $<2X$ background	Level C	Mist water on sampling area to reduce the risk of particle inhalation. Respiratory protection using Air Purifying Respirator with P-100 cartridge.
DNSC Depots where mercury is a contaminant of concern and is	Mercury vapors are detected at >0.05 mg/m ³ for 5 minutes using a Jerome	Level C	Respiratory protection using Air Purifying Respirator with mercury vapor cartridges.

suspected to be present or potentially in the breathing zone (sites to be identified in site-specific annex).	Mercury Vapor Analyzer. Monitor continuously when in warehouses where mercury is stored.		Workers will retreat upwind if the mercury downwind concentration exceeds 0.999 mg/m ³ .
Depots where high concentrations (%conc) of heavy metals or pesticides exists and excavation operations are being performed with a backhoe or excavator.	When particulate levels exceed the PEL of heavy metal or pesticide	Level C	An fullface air purifying respirator will be worn with P-100 cartridges

SECTION 8

MEDICAL SURVEILLANCE AND MEDICAL SUPPORT

8.1 While activities in the DNSC site characterization program do not constitute hazardous waste operations, personnel will be enrolled in a medical monitoring program as required by 29 CFR 1910.120(f). Parsons utilizes the services of licensed, local physicians for medical examinations and a contract occupational health physician to review all medical records to provide medical surveillance of employees at the various Parsons offices. Similar medical monitoring is also required for subcontractors. A letter (signed by a physician) attesting to each individual's fitness for duty must be provided to the Project Manager (by Parsons and Subcontractor personnel) prior to beginning work. All employees engaged in site characterization activities shall maintain on-site documentation of current medical status.

8.2 The medical support plan for hazardous waste operations is contained in Appendix D to this PHASP, it describes Parsons' medical surveillance and medical records procedure. Respirator fit test certification is required for work in areas where potential respirator use may be necessary, as is a physician's certification that each team member is medically fit to wear a respirator.

SECTION 9

ENVIRONMENTAL AND PERSONAL MONITORING

9.1 AIRBORNE CONTAMINANT MONITORING

If airborne VOC or mercury vapor contamination is suspected, air monitoring will be conducted during intrusive subsurface sampling (i.e., greater than 6 inches deep), and drilling activities. Monitoring will be conducted by Parsons personnel. The purpose of this air monitoring is three-fold:

- To determine the airborne concentrations of contaminants to which personnel working on the site would be exposed without PPE or other control measures, and to evaluate the adequacy of PPE or other control measures used by site workers.
- To determine the airborne concentrations of contaminants being released from ongoing site activities and to evaluate the need for additional engineering controls during drilling.
- To determine the airborne contaminant concentrations leaving the site during intrusive activities and to evaluate/document potential public exposures.
- Monitoring for particulates will be conducted if deemed necessary and will be covered in the site-specific health plan annex.

9.2 AIR MONITORING INSTRUMENTS

The air contaminants to be measured are volatile organic compounds (VOCs), and if warranted, mercury vapors. Other types of air monitoring, such as dust monitoring, may be specified in the site-specific annexes if deemed necessary by the SSHO or PSHO by their review of site-specific information. The VOC and mercury air monitoring instruments or methods used to evaluate airborne concentrations of these contaminants are indicated below:

9.2.1 VOCs

Photoionization detector (PID) with a 10.2 electron volt (eV) lamp will be used to conduct general VOC monitoring.

9.2.2 Mercury Vapor Analysis

A Jerome Mercury Vapor Analyzer may be used to monitor for the presence of mercury vapor during site activities at specific depots where mercury storage occurred, and is suspected to be present in the subsurface and in the breathing zone.

9.2.3 Particulate Monitoring

A MIE PDM-3 Miniram will be used to monitor particulates at sites where exposures to high levels of pesticide or heavy metal are anticipated and excavation operations are being performed

9.3.5 Ionizing Radiation

Ionizing radiation will be monitored using a Geiger-muller counter with a pancake probe when there is the potential exposure to alpha and beta emitters (at Binghamton, Scotia and Curtis Bay). This monitoring will also be in accordance with DNSC's Radiation Protection Policy.

9.3 ACTION LEVELS

9.3.1 VOCs

The action levels in Tables 9.1.a and 9.1.b will be used to set PPE levels and determine appropriate responses. When detected concentrations exceed action levels for greater than 5 minutes, workers will back away and allow time for dispersal of chemicals and/or consider taking measures to control releases such as misting soil with water. If levels remain high, workers can upgrade PPE or retreat from area to discuss other options.

Table 9.1.a
VOC Concentration Detected and Required Level of Protection

Concentration of VOCs at Breathing Height (5-5.5 ft) *	Required Level of Protection
0 - 10 ppm	Level D
>10- 100 ppm	Level C
> 100 ppm	Stop work; reevaluate activities at site area.

* If PID records total VOC concentration ≥ 1 ppm for 5 minutes, a benzene Draeger tube will then be used to monitor the concentration of benzene. The concentration of benzene detected on the Draeger tube will be used as shown in Table 9.1.b. to determine the appropriate level of protection:

Table 9.1.b
Benzene Concentration Detected and Required Level of Protection

Concentration of Benzene at Breathing Height (5-5.5 ft)	Required Level of Protection
0 – 1 ppm	Level D
> 1 – 50 ppm	Level C

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> 50 ppm

Stop work, reevaluate activities at site area

9.3.2 Mercury

If mercury monitoring is deemed necessary, the action level will be 0.05 mg/m³ for 5 minutes. Workers may don respirators with mercury vapor cartridges at sustained concentrations of mercury between 0.05 mg/m³ and 0.999 mg/m³. Workers will retreat upwind at concentrations of mercury exceeding 0.999 mg/m³ for 5 minutes.

9.3.3 Ionizing Radiation

Geiger Mueller Counter/Eberline H-260 zinc sulfide probe will be used where radiation (beta, and alpha are primary radiation of concern) is suspected to be present in the work area, and is a COC. If the radiation is found twice the background level, the sampling area will be misted with water to reduce the risk of particle inhalation, and a full face Air Purifying Respirator with an P-100 cartridge will be donned.

To perform the monitoring, the GM operator will slowly traverse the area with the probe oriented towards the ground. The probe window should not be more than an inch above the ground surface. Locations with count rates twice background will be identified (flagged). Barrier tape will be placed around the perimeter of areas where the dose rate is above 1 mR/h. Entry into an area where the dose rate is above 1mR/h will not be permitted.

SECTION 10

HEAT AND COLD STRESS

10.1 HEAT STRESS

10.1.1 Monitoring for heat stress will be conducted by the SSHO by the methods specified in 10.2.2 at the frequency and conditions specified in Table 10.1. Sweating does not cool the body unless the sweat is evaporated from the body. Working in the field under sun with the use of personal protective equipment (PPE) reduces the body's ability to eliminate large quantities of heat because the evaporation of sweat is decreased. The body's effort to maintain an acceptable temperature may become impaired and this may cause heat stress. Increased body temperature and physical discomfort also promote irritability and a decreased attention to the performance of hazardous tasks. If semi-permeable and impermeable PPE is used at these sites, heat stress is a **MAJOR HAZARD** to involved site workers.

10.1.2 Heat stress related problems include heat rash, fainting, heat cramps, heat exhaustion, and heat stroke. Heat rash occurs because sweat is not evaporating, making the skin wet most of the time. Standing erect and immobile in the heat allows blood to pool in the lower extremities. As a result, blood does not return to the heart to be pumped back to the brain and fainting may occur. Heat cramps are painful spasms of the muscles due to excessive salt loss from profuse sweating. Heat exhaustion occurs due to the large fluid and salt loss from profuse sweating. A person's skin is clammy and moist; and nausea, dizziness, and headaches may occur.

10.1.3 Heat stroke occurs when the body's temperature regulatory system has failed. Skin is hot, dry, red, and spotted. The affected person may be mentally confused, delirious, and convulsions may occur. A person exhibiting signs of heat stroke should be removed from the work area to be shaded area immediately. The person should be soaked with water and fanned to promote evaporation. Medical attention must be obtained immediately. **EARLY RECOGNITION AND TREATMENT OF HEAT STROKE ARE THE ONLY MEANS OF PREVENTING BRAIN DAMAGE OR DEATH.**

10.1.4. Monitoring of personnel wearing PPE will begin when the ambient temperature is 70°F or above. Table 10.1 presents the frequency for such monitoring. Monitoring frequency will increase as the ambient temperature increases or as slow recovery rates are observed. Heat stress monitoring will be performed by a person with a current first-aid certification who is trained to recognize heat stress symptoms.

10.2 WORK/REST SCHEDULE

10.2.1 The management of risk for heat stress exposures centers around the principal of job-specific controls. Controls that will be implemented to reduce the potential for worker heat strains includes: use of acclimated workers, providing adequate replacement fluid, educating workers to recognize the early symptoms of heat stress, use of cooling vest, physiological monitoring, and developing a work/rest schedule that will prevent the onset of heat strain. When the ambient temperature exceeds 72°F the SSHO will institute a work/rest regime.

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Work periods for down range workers will not exceed the maximum times specified in table 10.1. As a minimum, rest periods will be 15 minutes. Based on the results of physiological monitoring and worker observations (see below) the SSHO can decrease the work duration or increase the rest period.

Table 10.1
Maximum Work Duration

Adjusted temperature ^{(a)(b)}	Duration using Level D/Modified Level D ensembles (minutes)	Duration using levels C, B, or A ensembles (minutes)
90°F or above	45	15
87.5-90°F	60	30
82.5-87.5°F	90	60
77.5-82.5°F	120	90
72.5-77.5°F	150	120

From NIOSH/OSHA/USEPA/USCG publication Occupational Safety and Health Guidance Manual for Hazardous Waste Sites (1985)

- (a) For work levels of 250 kilocalories/hour.
- (b) Calculate the adjusted air temperature (ta adj) by using the equation:

$$ta\ adj = ta + (13 \times \text{percent sunshine})$$

where: ta is the air temperature in °F.

Measure air temperature (ta) with a standard mercury-in-glass thermometer, with the bulb shielded from radiant heat. Estimate percent sunshine by judging what percent time the sun is not covered by clouds that are thick enough to produce a shadow (100 percent sunshine = no cloud cover and a sharp, distinct shadow; zero percent sunshine = no shadows.)

10.2.2 At the discretion of the SSHO, a WBGT maybe used to monitor for conditions that pose a threat of thermal strain to workers. WBGT monitoring should be conducted by the SSHO when workers are dressed in level D or modified level D ensembles and the ambient temperature exceed 75° F. Once the WBGT has been determined, the SSHO can estimate workers' metabolic heat load using table 10.2 and 10.3 to determine the appropriate work/rest regimen. Modification to the work/rest schedule can be instituted by the SSHO based on physiological monitoring data (see below). The values outlined in the Table 10.3 are designed for acclimated workers clothed in a permeable work ensemble. The WBGT is not a good predictor of heat stain when impermeable ensembles are worn.

Table 10.2
Examples of Activities Within Metabolic Rate Categories

Categories	Example Activities
Resting	Sitting quietly
Light	Sitting with moderate leg and arm movement
	Using table saw
Moderate	Standing with light or moderate work (at bench or operating machine)
	Scrubbing in standing position
	Walking about with moderate lifting
Heavy	Walking on level surface while carrying 7 lb load
	Sawing by hand
	Shoveling
	Intermittent heavy lifting

From year 2003 TLVs and BEIs booklet published by ACGIH

Table 10.3
Work/Rest Schedule Base on WBGT Reading

Work – Rest Regimen	Work Load		
	Light*	Moderate*	Heavy*
Continuous work	85 F (29.5 C)	82 F (27.5 C)	79 F (26.0 C)
75% Work - 25% Rest, each hour	87 (30.6)	83 (28.5)	82 (27.5)
50% Work - 50% Rest, each hour	89 (31.5)	85 (29.5)	83 (28.5)
25% Work - 75% Rest, each hour	90 (32.5)	88 (31.0)	86 (30.0)

From year 2003 TLVs and BEIs booklet published by ACGIH

10.2.3 The worker's heart rate and temperature will be monitored by the SSHO to evaluate the effectiveness of the work/rest schedule. To monitor a worker's heart rate the SSHO will count the radial pulse or the worker during a 30-second period as early as possible in the rest period. If the worker's heart rate exceeds 110 beats per minute at the beginning of the rest period, the next work cycle should be shortened by one-third (the rest time should remain constant). If the worker's heart rate still exceeds 110 beats per minute at the next rest period, the following work cycle will be shortened again by a third.

10.2.4 A clinical thermometer or similar device should be used to measure the oral temperature of workers at the end of the work period (before drinking). If the oral temperature of a worker increases $>2^{\circ}\text{F}$ during the work period, shorten the next work cycle by one-third. If the oral temperature continues to be elevated $>2^{\circ}\text{F}$ the next work cycle will again be shorten by a third. This process will continue until elevated temperatures are not observed. (Workers can return to full duty after heart rate and temperature return to normal [usually after 15-minute rest period]). The results of worker monitoring will be recorded by the SSHO. For PPE level C or higher, a site standard operating procedure for heat stress monitoring may be used as an alternative.

10.3 PREVENTION OF HEAT STRESS

Proper training and preventive measures will aid in averting loss of worker productivity and serious illness. Heat stress prevention is particularly important because once a person suffers from heat stroke or heat exhaustion, that person may be predisposed to additional heat related illnesses. To avoid heat stress, the following steps should be taken:

- Adjust work schedules.
 - Modify work/rest schedules according to monitoring requirements.
 - Mandate work slowdowns as needed.
 - Perform work during cooler hours of the day, if possible, or at night if adequate lighting can be provided.
- Provide shelter (air-conditioned, if possible) or shaded areas to protect personnel during rest periods.
- Maintain worker's body fluids at normal levels. This is necessary to ensure that the cardiovascular system functions adequately. Daily fluids intake must approximately equal the amount of water lost in sweat, e.g. 8 fluid ounces (0.23 liters) of water must be ingested for approximately every 8 ounces (0.23 kg) of weight loss. The normal thirst mechanism is not sensitive enough to ensure that enough water will be drunk to replace lost sweat. When heavy sweating occurs, encourage the worker to drink more. The following strategies may be useful:
 - Maintain water temperature at 50° to 60°F (10° - 16.6°C).
 - Provide small disposable cups that hold about 4 ounces (0.1 liter).
 - Have workers drink 16 ounces (0.5 liters) of fluid (preferably water or dilute drinks) before beginning work.
 - Urge workers to drink a cup or two every 15 to 20 minutes, or at each monitoring break. A total of 1 to 1.6 gallons (4 to 6 liters) of fluid per day are recommended, but more may be necessary to maintain body weight.
- Train workers to recognize the symptoms of heat-related illnesses.
- Rotate personnel and alternate job functions.

10.4 COLD-RELATED ILLNESS

Exposure to low temperatures presents a risk to employee safety and health both through the direct effect of the low temperature on the body and collateral effects such as slipping on ice, decreased dexterity, and reduced dependability of equipment. Work conducted in the winter months can become a hazard for field personnel due to cold exposure. All personnel must exercise increased care when working in cold environments to prevent accidents that may result from the cold. The effects of cold exposure include frostbite and hypothermia. Wind increases the impact of cold on a person's body. Systemic cold exposure is referred to as hypothermia. Local cold exposure is generally labeled frostbite. Recognition of the symptoms of cold-related illness will be discussed during the health and safety briefing conducted prior to the onset of site activities during cold weather.

- **Hypothermia.** Hypothermia is defined as a decrease in a person's core temperature below 96°F. The body temperature is normally maintained by a combination of central (brain and spinal cord) and peripheral (skin and muscle) activity. Interference with any of these mechanisms can result in hypothermia, even in the absence of "cold" ambient temperatures. The first symptom of systemic hypothermia is shivering. Maximum shivering starts when the core body temperature drops below 95°F. The next set of symptoms as the body's cooling progresses is apathy, listlessness, and sleepiness. The person remains conscious and responsive with normal blood pressure and a core temperature of 93.2°F. The person must be removed immediately to a facility with heat. As hypothermia advances beyond this point, the person has a glassy stare, slow pulse, slow respiratory rate, and may lose consciousness. Severe hypothermia starts when the core body temperature reaches 91.4°F. Finally, the extremities start to freeze and death may result.

- **Work Practices**

Adequate insulating dry clothing should be worn if work is performed in air temperature < 40°F. Wind chill cooling rate and cooling power of air are critical factors (wind chill cooling rate is defined as heat loss from a body expressed in Watts/m² which is a function of the air temperature and wind velocity upon the exposed body). The higher the wind speed and lower the temperature in the work area, greater the insulation value of clothing required. The use of extra insulating clothing and/or a reduction in the duration of exposure period are among special precautions. The work should be arranged in such a way that sitting still or standing still for long periods are minimized. If work is performed continuously in the cold at an Equivalent Chill temperature of 19.4°F (see Table 10.4), the workers should take a 10-minute break every hour in Depot Manager's office/heated storage warehouse, the frequency will also depend upon the severity of cold. Dehydration, or the loss of body fluids occurs insidiously in the cold environment and may increase the susceptibility of the worker to cold injury due to significant change in blood flow to the extremities. Warm sweet drinks or soups may be taken to regulate caloric intake and fluid volume. The intake of coffee should be limited because of diuretic and circulatory effect.

TABLE 10.4

**COOLING POWER OF WIND ON EXPOSED FLESH EXPRESSED AS
 EQUIVALENT TEMPERATURE (UNDER CALM CONDITIONS)**

		Actual Temperature Reading (°F)					
Estimated Wind Speed (mph)	50	40	30	20	10	0	
		Equivalent Chill Temperature (°F)					
calm	50	40	30	20	10	0	
5	48	37	27	16	6	-5	
10	40	28	16	4	-9	-24	
15	36	22	9	-5	-18	-32	
20	32	18	4	-10	-25	-39	
25	30	16	0	-15	-29	-44	
30	28	13	-2	-18	-33	-48	
35	27	11	-4	-20	-35	-51	
40	26	10	-6	-21	-37	-53	

The following is suggested as a guide for estimating wind velocity if accurate information is not available:

- 5 mph: light flag moves;
- 10 mph: light flag fully extended;
- 15 mph: raises newspaper sheet;
- 20 mph: blowing and drifting snow.

SECTION 11

SITE CONTROL

11.1 INTRODUCTION

The purpose of site control is to minimize potential contamination of workers, protect the public, and prevent unauthorized entry. Site control involves the physical arrangement and controlling access into established work zones.

11.2 SITE WORK ZONES

To reduce the spread of hazardous materials by workers from the contaminated areas to the clean areas, zones will be delineated to aid in controlling the flow of personnel and equipment between the zones. The establishment of the work zones will help ensure that personnel are properly protected against the hazards present where they are working; work activities and contamination are confined to the appropriate areas; and personnel can be located and evacuated in an emergency. Site work zones will be established for drilling activities. Exclusion zone, contamination-reduction zone, and the support zone are described in greater detail below.

11.2.1 Exclusion Zone (EZ)

The EZ is work area where intrusive investigation will take place. Within the EZ, PPE, and respiratory protection (where required) may be worn by all personnel. The hotline, or EZ boundary, will be established by the SSHO at the start of the activity through visual observations and/or site setting conditions, but will be a minimum of 50 feet from the working area. Yellow caution tape will be used to mark this area, if heavy equipment is in use or there are open ground excavations. All Parsons personnel and subcontractors will be properly trained in controlling and minimizing access to the EZ. Should an unauthorized person enter the EZ they will be stopped and escorted to the support zone. If necessary, work will be stopped until the situation is resolved. Unauthorized entry will be recorded in the field notebook.

11.2.2 Contamination-Reduction Zone (CRZ)

The CRZ is the transition area between the contaminated area and the clean area. This zone provides an area to prevent or reduce the transfer of hazardous materials which may have been picked up by personnel or equipment leaving the EZ.

11.2.3 Support Zone

The support zone is considered a clean area. The support zone for each site will be located at sufficient distance from intrusive activity, it contains sampling vehicles and support supplies. Level D PPE is appropriate apparel within this zone. Contaminated clothing and equipment are not permitted in the support zone. If activities are to be conducted during the

winter months, special types of PPE and other safety equipment susceptible to freezing (e.g., eye wash and decontamination solutions) will be stored in a heated space.

11.3 EMERGENCY PROTOCOL

Should an emergency occur while personnel are in site work zones, cellular phones will be used to alert site personnel that an emergency exists. The call will indicate to site personnel that work activities are to cease and be secured, and personnel are to proceed back through the decontamination zone (if they are in the EZ or CRZ) and assemble at the Depot manager's office. Emergency Response and Contingency Plan Section 14, contains details on this and other emergency procedures which will be used at DNSC depots.

SECTION 12

PERSONNEL DECONTAMINATION

12.1 PERSONNEL DECONTAMINATION

12.1.1 This section discusses personnel decontamination. To prevent harmful materials from being transferred into clean areas or from exposing unprotected workers, all field personnel and equipment exiting an area of potential contamination should undergo decontamination. The extent of decontamination depends on a number of factors, the most important being the type and concentration of the contaminant involved.

12.1.2 Level D decontamination will consist of rinsing, removal and bagging of disposable gloves. An exclusion zone will be established for Level C activities (if needed) to prevent personnel from entering these areas without proper safety equipment (e.g., hard hat, steel-toe boots, respirators, etc.). Personnel should wash hands and face before eating and before leaving the site.

12.1.1 Level C Decontamination Procedures

If Level C protection is required, decontamination procedures will be divided into five stations. These stations represent procedures and are not necessarily separate locations. Level C decontamination will consist of the following:

Station 1: Segregated Equipment Drop

Deposit equipment used on the Site (tools, sampling devices and containers, monitoring instruments, clipboards, etc.) on plastic drop cloths and in different containers with plastic liners. Each will be contaminated to a different degree. Segregation at the drop reduces the probability of cross-contamination.

Necessary equipment includes:

1. Containers of various sizes;
2. Plastic liners; and
3. Plastic drop cloths.

Station 2: Wash Gloves and Boot Removal

Wash the gloves and remove boots and deposit in individually marked plastic bags.

Necessary equipment includes:

1. Plastic bag; and
2. Bench or stool.

Station 3: Cartridge Change

If a worker leaves the exclusion zone to change cartridges, this is the last step in the decontamination process. The worker's cartridges are exchanged, new outer gloves and boots donned, and joints taped. Worker returns to duty. Otherwise the worker proceeds to Station 5.

Necessary equipment includes:

1. Cartridges;
2. Tape;
3. Boot covers; and
4. Gloves.

Station 4: Removal of Chemically Resistant Suit

With assistance of helper, remove Tyvek suit. Deposit in a container with plastic liner.

Necessary equipment includes:

1. Container (20 gallon)
2. Chair; and
3. Plastic liner.

Station 5: Respirator and Glove Removal

Remove face piece. Avoid touching face. Wash respirator in clean sanitized solution, allow to dry and deposit facepiece in plastic bag. Store in clean area. Remove inner gloves and deposit in container with plastic liner.

Necessary equipment includes:

1. Plastic bags;
2. Sanitizing solution;
3. Towels; and
4. Container with plastic liner.

Modifications can be made to the five-station decontamination procedures depending upon the extent of contamination. The effectiveness of the decontamination procedure should be checked by visual inspection

12.2 EQUIPMENT DECONTAMINATION

12.2.1 A decontamination area will be established in an area of the site considered free from contamination. Equipment decontamination activities will be centralized in this area. Decontamination water and solids will be collected at the decontamination area.

12.2.2 Clean, disposable gloves, and eye protection (safety glasses) will be worn while handling sampling equipment during the decontamination. Distilled organic-free water will be stored in glass or plastic containers.

12.2.3 All hand-held equipment and tools used will receive, at a minimum, a two-stage wash and rinse prior to leaving the site. The first stage is a wash in soapy water. The second step involves rinsing the item in clean water. All decontamination fluids will be collected in pans or buckets. The fluids will be containerized, tested, and disposed of properly based upon the analytical results. After this wash/rinse cycle, hand tools/equipment can be removed upon inspection and approval by the SSHO.

12.2.4 If heavy equipment requires decontamination, a decontamination sump will be built. Proper decontamination of equipment is extremely important to ensure contamination is not spread to uncontaminated portions of the site or to site personnel. The layer of protection will be changed as needed to prevent the spread of contamination to surfaces inside the operator area. In order for a vehicle or piece of heavy equipment to pass inspection it must be in a broom-clean condition, free of loose dirt or stabilized material on tailgates, axles, and wheels. All surfaces that contacted potentially contaminated materials, including soil, will be given a clean water rinse. Approval for heavy equipment removal will be based on visual inspection of all exposed surfaces.

12.2.5 Personnel assigned to heavy equipment and vehicle decontamination shall wear the protective equipment, clothing, and respiratory protection consistent with the levels of PPE worn during the site activities during which the heavy equipment/vehicle became contaminated. Unless a full-face piece respirator is worn as part of this requirement, the decontamination personnel will wear a splash shield during the decontamination of heavy equipment/vehicles.

12.2.6 Disposition of decontamination water, unless otherwise specified in the site-specific annex, will be in the facility sanitary sewer system, or onto the ground surface as long as it does not enter the storm water system.

12.3 DECONTAMINATION PROCEDURES DURING MEDICAL EMERGENCIES

Decontamination procedures during medical emergencies must be thorough to prevent exposure of unprotected medical personnel and facilities. Cutting away disposable clothing and

other similar decontamination activities should be undertaken to expedite decontamination to the maximum extent possible.

12.3.1 Chemical Exposure

12.3.1.1 Exposure to chemicals can be divided into two categories:

- Injuries from direct contact, such as acid burns or inhalation of toxic chemicals, and
- Potential injury caused by gross contamination of clothing or equipment.

12.3.1.2 For inhaled contaminants, treatment can only be performed by qualified physicians. If the contaminant is on the skin or in the eyes, first-aid treatment generally includes flooding the affected area with water. For a few chemicals, however, water may cause more severe problems.

12.3.1.3 When protective clothing is grossly contaminated, contaminants may be transferred from the wearer to treatment personnel and cause injuries. The protective clothing should be washed off as rapidly as possible and then carefully removed.

SECTION 13

EMERGENCY RESPONSE AND CONTINGENCY PLAN

Emergencies such as chemical exposure of a worker, or a personal injury may occur during work. In the event that an emergency develops, the procedures outlined in this section are to be followed.

13.1 EMERGENCY EQUIPMENT

In each operative decontamination area, the SSHO will establish an emergency equipment station containing the following: first-aid kit, a portable fire extinguisher having a rating of not less than 20:ABC, an emergency eyewash and a portable cellular telephone. Copies of pertinent figures including emergency phone numbers, and written directions and maps with hospital routes will be provided in the project-specific HASPs.

13.2 GENERAL EMERGENCY PROCEDURES

General emergency procedures are as follows:

- Notify the emergency contacts listed in the PHASP and project-specific HASP when an emergency occurs. This list is posted prominently at the site.
- Use the "buddy" system (pairs).
- Maintain visual contact between "pairs." Each team member remains close to the other to assist in case of emergencies.
- If any member of the field crew experiences any adverse effects or symptoms of exposure, the entire field crew will immediately halt work and act according to the instructions provided by the Site Manager.
- Any condition that suggests a situation more hazardous than anticipated will result in evacuating the field team and reevaluating the hazard and the level of protection required.
- If an accident occurs, the SSHO is to complete an Accident Report Form (Appendix B). Follow-on action will be taken to correct the situation that caused the accident.

13.3 PROJECT-SPECIFIC EMERGENCY PROCEDURES

The site specific emergency contacts and route to medical facilities will be included in a site-specific health plan annex.

13.4 COMMUNITY AIR MONITORING PLAN

Real-time air monitoring for VOCs at the perimeter of the exclusion zone is necessary if VOCs, benzene, or mercury are detected above the lowest action levels listed in Subsection 9.3. Proactive wetting down of site soils should protect site workers and prevent the generation and offsite emission of dusts from investigation activities. However, if required by regulatory agencies, or if dust/particulate emissions are a specific concern at a site, this Community Air Monitoring Plan will be instituted if specified in the site-specific health plan annex. A designee of the SSHO will conduct monitoring described below continuously during all intrusive activities that have the potential to generate dust. The equipment used shall be capable of real-time measuring of particulates less than 10 micrometers in size and be capable of integrating over a period of 15 minutes. Mercury vapor monitoring will employ a Jerome analyzer, and a PID will be used for VOC monitoring. Other considerations/requirements are as follows for New York State sites, as required by the New York State Department of Health (other sites in other states will follow this plan unless individual states have other requirements):

- Volatile organic compounds and mercury (if present) must be monitored at the downwind perimeter of the exclusion zone daily at 2-hour intervals. If total organic vapor levels exceed 1 ppm above background, or mercury vapor levels exceed 0.1 mg/m^3 , drilling or intrusive activities must be halted and monitoring continued under the provisions of the Vapor Emission Response Plan (see below). All readings must be recorded and available for responsible authorities to review.
- If site soils become airborne due to wind erosion of soils or the activities of heavy equipment, the following protocol will be followed. Particulates shall be continuously monitored downwind of the exclusion zone with a portable aerosol monitor (such as a personal MINIRAM) that would have an alarm set at $150 \text{ } \mu\text{g/m}^3$. If downwind particulate levels, integrated over a period of 15 minutes, exceed $150 \text{ } \mu\text{g/m}^3$, then particulate levels upwind of the survey or work site would be measured. If the downwind particulate level is more than $100 \text{ } \mu\text{g/m}^3$ greater than the upwind particulate level, then intrusive activities must be stopped and corrective action taken. All readings must be recorded. These action levels can be modified if particulates are better characterized and identified.

13.4.1 Vapor Emission Response Plan

If the ambient air concentration of VOCs exceeds 1 ppm above background (for a 5-minute sustained period) at the perimeter of the exclusion zone, activities will be halted and monitoring continued. If the VOC level decreases below 1 ppm above background, activities can resume. If the VOC levels are greater than 1 ppm over background but less than 5 ppm over background at the perimeter of the exclusion zone, activities can resume provided:

- The organic (or mercury) vapor level 200 ft. downwind of the exclusion zone or half the distance to the receptor (member of the general public), whichever is less, is below 1 ppm over background (VOCs) or 0.1 mg/m^3 (mercury vapor), and
- More frequent intervals of monitoring are conducted.

If the organic vapor level is above 5ppm at the perimeter of the exclusion zone work activities must be shutdown. When work shutdown occurs, downwind air monitoring as directed by the SSHO will be implemented to ensure that vapor emission does not impact the nearest receptor at levels exceeding those specified in the Major Vapor Emission section.

13.4.2 Major Vapor Emission

If any organic levels greater than 5 ppm over background are identified 200 feet downwind from the exclusion zone or half the distance to the nearest receptor, whichever is less, all work activities must be halted.

If organic levels then persist above 5 ppm above background 200 feet downwind or half the distance to the nearest receptor from the exclusion zone, then the air quality must be monitored within 20 feet of the perimeter of the nearest receptor (20-foot zone).

If either of the following criteria are exceeded in the 20-foot zone, then the Major Vapor Emission Response Plan shall automatically be implemented:

- Organic vapor levels approaching 5 ppm above background for a period of more than 30 minutes.
- Organic vapor levels greater than 10 ppm above background for any time period.

13.4.3 Major Vapor Emission Response Plan

Upon activation, the following activities will be undertaken:

1. The local police will immediately be contacted by the SSHO and advised of the situation.
2. Frequent air monitoring will be conducted at 30 minute intervals within the 20-foot zone. If two successive readings below action levels are measured, air monitoring may be halted or modified by the SSHO.
3. All Emergency contacts will go into effect, as appropriate.

SECTION 14

STANDARD OPERATING PROCEDURES, ENGINEERING CONTROLS, AND SAFE WORK PRACTICES

14.1 GENERAL SAFETY

The following are considered standard safe work practices.

1. Eating, drinking, chewing tobacco, smoking, and carrying matches or lighters are prohibited in a contaminated or potentially contaminated area or where the possibility for contamination transfer exists. These areas will be identified by the SSHO based on site-specific conditions, and communicated as necessary during the daily safety meetings.
2. Avoid contact with potentially contaminated substances or materials. Do not walk through puddles, pools, mud, or handle soils without protective gloves, etc. Avoid, whenever possible, kneeling on the ground, leaning or sitting on equipment or the ground. Do not place monitoring equipment on potentially contaminated surfaces (e.g., ground, etc.).
3. All field crew members should be alert to all potentially dangerous situations e.g., presence of strong, irritating, unusual, or nauseating odors.
4. Field crew members shall be familiar with the physical characteristics of a site during intrusive investigations, including:
 - Wind direction in relation to nearby buildings;
 - Accessibility to associates, equipment, vehicles, communication;
 - Hot zone (areas of known or suspected contamination);
 - Site access; and
 - Nearest water sources.
5. Protective equipment as specified in this plan will be used by workers during field activities.
6. Use of heavy equipment on-site, e.g., drilling rigs, presents additional hazards for site workers.
7. Wearing personal protective equipment can result in an impairment of the ability to operate site equipment. All field crew members should pay specific attention to decreased performance capabilities resulting from the use of personal protective equipment, such as poor tactile skills when wearing certain types of gloves. Prior knowledge of limitations imposed by the use of such equipment

and clothing will allow the worker to assess the decrease in his or her capability to perform field operations in a safe manner.

8. Wearing of jewelry, such as rings and loose bracelets and necklaces, is prohibited in order to avoid its entanglement in site machinery.
9. Overhead power lines, downed electrical wires, and buried cables pose a danger of shock or electrocution if workers contact or sever them during site operations. The location of these potential hazards should be ascertained before beginning site activities.
10. Buddy system procedures will be enforced during field operations.
11. Field personnel will perform only those tasks which they are qualified to perform.
12. Site visitors are to be escorted by qualified personnel at all times.
13. Running and horseplay are prohibited in all areas of the site.
14. The number of personnel in the exclusion zone (EZ) will be the minimum number necessary to perform work tasks in a safe and efficient manner.
15. A warning system using a series of three five-second blasts on portable air horns or vehicle horns will notify site personnel that an accident or incident has occurred and evacuation is required. Upon hearing the evacuation warning, all personnel will immediately clear the site and respond to the rally point. Unless otherwise identified by the SSHO during the site safety meeting, the rally point in case of emergency will be the depot manager's office.

SECTION 15

TRAINING

15.1 OSHA TRAINING

15.1.1 Although DNSC Depots are not hazardous waste sites, Parsons employees will meet the training requirements of 29 CFR 1910.120. Employees will have received 40 hours of initial off-site training and a minimum of 3 days of supervised field experience before being permitted to conduct site characterization field work. Initial training, consisting of classroom lectures and field exercises, is performed by the Corporate Health and Safety staff. Site supervisors will have received 8 hours of additional training on managing operations.

15.1.2 Field workers and on-site management personnel receive eight hours of refresher training annually, emphasizing the types of operations performed by those personnel. The training generally includes the following topics:

- Review of and retraining on relevant topics covered in the initial training;
- Updates on developments with respect to material covered in the initial training;
- Review of changes to pertinent provisions of USEPA or OSHA standards or laws;
- Hands-on training of personal protective equipment and decontamination equipment;
- Review of newly developed air and contaminant monitoring equipment;
- Bloodborne Pathogens training

In addition to the 40-hour initial training and 8-hour refresher training, a project-specific briefing will be conducted by the SSHO. This briefing will cover the following topics:

- Names of personnel responsible for site safety and health;
- Safe work practices;
- Site history;
- Safety, health, and other hazards at site;
- Work zones and other locations;
- Emergency procedures, evacuation routes, emergency phone numbers;
- Proper use (e.g., donning and doffing) of personal protective equipment;
- Safe use of engineering controls and equipment on the site;
- Ordnance recognition and reporting; and
- Prohibitions in areas and zones, including:

- Site layout, and
- Procedures for entry and exit of work areas and zones.

15.2 TAILGATE SAFETY MEETINGS

The SSHO is responsible for ensuring daily “tailgate” briefing is provided to all Parsons personnel and Parsons subcontractors under Parsons H&S supervision that are to work at the DNSC depots. The SSHO is also responsible for providing initial site-specific briefing for Parsons and subcontractor personnel who are on-site when non-intrusive tasks are being performed. This briefing will cover the following topics:

- Tasks to be performed;
- Hazards that may be encountered, including their effects, how to recognize symptoms or monitor them, or danger signals;
- Emergency procedures; and

15.3 TRAINING DOCUMENTATION

The SSHO will keep written documentation for all briefings given to personnel including personnel present and subjects covered. Documentation will be kept by SSHO for site-specific initial training, tailgate briefing/subjects, and any other special or additional training.

15.4 HAZARD COMMUNICATION

All project work will be conducted in accordance with Parsons’ standard policies for hazard communication (HazCom). Copies of Material Safety Data Sheets (MSDSs) for any chemicals brought on site will be maintained. Site orientation and training will be provided to all new employees brought on site and this will include an overview of all known hazards associated with the site. A copy of Parsons’ hazard communication program for this site is contained in Appendix E.

15.5 VISITOR TRAINING AND CONTROL

All visitors to the site will be given a H&S briefing prior to gaining access to the site where hazardous waste operations are ongoing. Following this briefing, visitors will be asked to sign the PHASP - Plan Acceptance Forms. The SSHO will also ensure that visitors have applicable health and safety equipment, medical surveillance, and training for the activities/areas they will be visiting. Should questions arise as to whether or not specific training or equipment is needed, the PSHO will be contacted.

15.6 RADIATION TRAINING

All personnel working at locations where ionizing radiation is anticipated to be a COC will receive training for ionizing radiation. The training will be performed by the RSO or designee and consist of the following topics:

- The types and nature of the materials anticipated
- Health and safety problems associated with exposure to radiation, including the potential effects of radiation on a pregnant female, the fetus, or embryo
- Precautions and controls used to control exposure
- Proper use of instrumentation
- The Radiation Safety Program

The training will be conducted as part of the site-specific training for these sites.

SECTION 16

SAFETY AND HEALTH EXPECTATIONS, INCENTIVE PROGRAMS, AND COMPLIANCE

16.1 COMPANY SAFETY PROGRAM GOALS AND OBJECTIVES

Parsons performs work in the fields of construction management and environmental engineering throughout the world. The nature of this work may expose Parsons employees to risk at one time or another. The risks inherent in our work can always be minimized by care, training, adherence to health and safety rules and procedures, and the proper use of safety and protective equipment.

All employees should be aware of Parsons health and safety policy and should be familiar with the Corporate Health and Safety Manual. The success of the health and safety program requires the effort of both Parsons management and Parsons operational personnel. It is the responsibility of Parsons management to assure that all work is done in compliance with this program. The company management will provide the resources and training necessary to implement the health and safety program; the staff must use the resources properly, follow the work procedures and requirements, and aid management by pointing out and helping to correct unsafe conditions.

16.2 ACCIDENT EXPERIENCE GOALS AND ACCOUNTABILITY

While we realize that accidents, operational mishaps, and injuries do occur, these occurrences are never considered acceptable. The only acceptable safety performance goal is zero incidents. Any other goal would imply that Parsons accepts injuries and accidents, or less than quality performance.

Commitment from all levels of Parsons staff is necessary to attain our goal of performance perfection. All levels of management and supervision accept responsibility for the prevention of operational mishaps.

16.3 COMPANY SAFETY INCENTIVE PROGRAMS

To encourage adherence to safe work practices, employees may be recognized by means of a special notice or award, such as a plaque, letter of commendation, or other means. Employees may be recognized for identifying a hazard and eliminating it or creating a method for managing the hazard. Individual as well as group awards can be issued in recognition of extra efforts where safety is involved.

16.4 COMPANY POLICIES AND PROCEDURES REGARDING NONCOMPLIANCE

To ensure adherence to safe work practices, employees are subject to corrective action, including informal warnings, written warnings, suspension, and/or discharge. The following procedure should be used when managers consider appropriate disciplinary action:

- Informal Warning – For first-time actions that represent a minor or moderate hazard.
- Written Warning – For repeated actions that represent a minor hazard.
- Suspension – For first-time actions that represent a major hazard and for repeated actions that represent a moderate hazard.
- Discharge – Repeated actions that represent a major hazard.

Suspension or discharge decisions should be made by the employee's Supervisor or Project Manager in consultation with the Human Resources Manager or PSHO and as outlined in the Parsons Human Resources Policies and Procedures Manual.