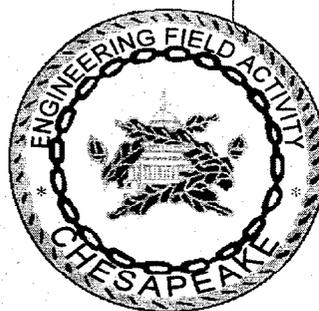


Project Specific Health and Safety Plan

for

- Site 32 - Tool Burial**
- Site 33 - Scrap Metal Pit**
- Site 34 - Tool Burial**
- Site 36 - Closed Landfill**
- Site 37 - Causeway**
- Site 42 - Olsen Road Landfill**
- Site 51 - Building 101 Dry Well**
- Site 52 - Building 102 Dry Well**

**Indian Head Division
Naval Surface Warfare Center**
Indian Head, Maryland



**Engineering Field Activity Chesapeake
Naval Facilities Engineering Command**

Northern Division Contract No. N62472-90-D-1298

Contract Task Order 0325

January 2002



**PROJECT SPECIFIC
HEALTH AND SAFETY PLAN
FOR
SITE 32 - TOOL BURIAL
SITE 33 - SCRAP METAL PIT
SITE 34 - TOOL BURIAL
SITE 36 - CLOSED LANDFILL
SITE 37 - CAUSEWAY
SITE 42 - OLSEN ROAD LANDFILL
SITE 51 - BUILDING 101 DRY WELL
SITE 52 - BUILDING 102 DRY WELL
INDIAN HEAD DIVISION - NAVAL SURFACE WARFARE CENTER
INDIAN HEAD, MARYLAND**

**COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT**

Submitted to:
Engineering Field Activity Chesapeake
Environmental Branch Code 18
Naval Facilities Engineering Command
Washington Navy Yard, Building 212
Washington, D.C. 20374-2121

Submitted by:
Tetra Tech NUS, Inc.
600 Clark Avenue, Suite 3
King of Prussia, PA 19406-1433

**NORTHERN DIVISION CONTRACT NO. N62472-90-D-1298
CONTRACT TASK ORDER 0325**

January 2002

SUBMITTED BY:


GEORGE LATULIPPE, P.E.
PROJECT MANAGER
TETRA TECH NUS, INC.
PITTSBURGH, PENNSYLVANIA

APPROVED BY:

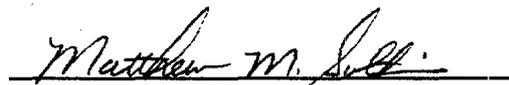

MATTHEW M. SOLTIS, CIH, CSP
CLEAN HEALTH & SAFETY MANAGER
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- ATTACHMENT IV EQUIPMENT INSPECTION CHECKLIST
- ATTACHMENT V SAFE WORK PERMITS
- ATTACHMENT VI OSHA JOB SAFETY POSTER

1.0 INTRODUCTION

The objective of this Health and Safety Plan (HASP) is to provide the minimum safety practices and procedures for Tetra Tech NUS, Inc. (TtNUS) and subcontractor personnel engaged in proposed site activities that are to be conducted at eight sites at the Indian Head Division Naval Surface Warfare Center (IHDIV-NSWC) Indian Head, Maryland. These sites include the previously investigated Site 42 – Olsen Road Landfill and the uninvestigated sites 32 - Suspected Tool Burial, 33 - Scrap Metal Pit, 34 - Tool Burial, 36 - Closed Landfill, 37 - Causeway, 51 - Building 101 Dry Well and 52 - Building 102 Dry Well.

In order to accomplish the objective, this HASP has been constructed using the latest available information regarding known or suspected chemical contaminants and potential and foreseeable physical hazards associated with the proposed work at the sites identified at the IHDIV-NSWC. This HASP has been designed to be used in accordance with the TtNUS Health and Safety Guidance Manual. The Guidance Manual provides detailed information pertaining to procedures to be performed on site as directed by the HASP, as well as TtNUS standard operating procedures. Both the HASP and the Health and Safety Guidance Manual must be present at the site to comply with the requirements stipulated in the Occupational Safety and Health Administration (OSHA) standard 29 CFR 1910.120.

This HASP has been written to support proposed tasks and techniques associated with the scope of work as presented in Section 4.0. Should the proposed work site conditions and/or suspected hazards change, or if new information becomes available, this document will be modified. All changes to the HASP will be made with the approval of the TtNUS CLEAN Health and Safety Manager (HSM) and the Project Manager (PM). The PM will notify all affected personnel of all changes.

The elements of this HASP are in compliance with the requirements established by OSHA 29 CFR 1910.120, "Hazardous Waste Operations and Emergency Response" (HAZWOPER) and sections of 29 CFR 1926, "Safety and Health Regulations for Construction."

1.1 AUTHORITY

This Contract Task Order (CTO) 0325 and the requirements set forth represent an integral part of an overall effort conducted under the Comprehensive Long - Term Environmental Action Navy (CLEAN) contract, administered through the U.S. Navy Northern Division Naval Facilities Engineering Command, as defined under Contract No. N62472-90-D-1298.

1.2 KEY PROJECT PERSONNEL AND ORGANIZATION

This section defines responsibility for site safety and health for TtNUS and subcontractor employees engaged in on site activities. Personnel assigned to these positions shall exercise the primary responsibility for all on site health and safety. These persons will be the primary point of contact for any questions regarding the safety and health procedures and the selected control measures.

- The TtNUS Project Manager (PM) is responsible for the overall direction and implementation of health and safety for this project.
- The TtNUS Field Operations Leader (FOL) is responsible for implementation of this HASP with the assistance of an appointed Site Safety Officer (SSO). The FOL manages field activities, executes the work plan, and enforces safety procedures, as applicable to the work plan.
- The SSO supports site activities by advising the FOL on all aspects of health and safety on site. These duties may include the following:
 - Coordinates all health and safety activities with the FOL.
 - Selects, inspects, implements, and maintains personal protective equipment.
 - Establishes work zones and control points.
 - Directs and assists in the development of decontamination areas and procedures.
 - Implements air monitoring program in support of on site activities.
 - Verifies training and medical status of on site personnel status in relation to site activities.
 - Implements hazard communication, respiratory protection, and other associated safety and health programs, as necessary.
 - Coordinates emergency services.
 - Provides site-specific training for all on site personnel.
- Compliance with these requirements is monitored by the Project Health and Safety Officer (PHSO) and is coordinated through the Health and Safety Manager.

1.3 SITE INFORMATION AND PERSONNEL ASSIGNMENTS

Site Name: Indian Head Division Naval
Surface Warfare Center (IHDIV-NSWC)

Address: Waldorf, Maryland

Site Point of Contact: Shawn Jorgensen

Phone Number: (301)743-6745

Scheduled Activities: This activity is divided into a multi-task operation performed sequentially through the execution of the elements as defined in the scope of work (See Section 4.0)

Proposed Dates of Work: January – February, 2002

Project Team:

TtNUS Management Personnel:

George Latulippe, PE
Kelly Smay
Fred Ramser
Matthew M. Soltis, CIH, CSP
TBD
James K. Laffey

Discipline/Tasks Assigned:

Project Manager (PM)
Project Engineer
Field Operations Leader/Geologist
Health and Safety Manager (HSM)
Site Safety Officer (SSO)
Project Health and Safety Officer (PHSO)

Non-TtNUS Personnel

Affiliation/Discipline/Tasks Assigned

Hazard Assessment (for purposes of 29 CFR 1010.132) for HASP preparation has been conducted by:
James K. Laffey

2.0 EMERGENCY ACTION PLAN

2.1 INTRODUCTION

This section has been developed as part of a planning effort to direct and guide field personnel in the event of an emergency. All site activities will be coordinated with the client contact, Shawn Jorgensen. In the event of an emergency which cannot be mitigated using onsite resources, personnel will evacuate to a safe place of refuge and the appropriate emergency response agencies will be notified. It has been determined that the majority of potential emergency situations would be better supported by outside emergency responders. Based on this determination, TtNUS and subcontractor personnel will not provide emergency response support beyond the capabilities of onsite response. Workers who are ill or who have suffered a non-serious injury may be transported by site personnel to nearby medical facilities, provided that such transport does not aggravate or further endanger the welfare of the injured/ill person. The emergency response agencies listed in this plan are capable of providing the most effective response, and as such, will be designated as the primary responders. These agencies are located within a reasonable distance from the area of site operations, which ensures adequate emergency response time. Navy contact Shawn Jorgensen will be notified anytime outside response agencies are contacted. This Emergency Action Plan conforms to the requirements of 29 CFR 1910.38(a), as allowed in 29 CFR 1910.120(l)(1)(ii).

TtNUS will, through necessary services, provide the following emergency action measures:

- Initial stage fire fighting support and prevention
- Initial spill control and containment measures and prevention
- Removal of personnel from emergency situations
- Initial medical support for injuries or illnesses requiring basic first-aid
- Site control and security measures as necessary

2.2 PRE-EMERGENCY PLANNING

Through the initial hazard/risk assessment effort, it is anticipated that emergencies resulting from chemical, physical, or fire hazards are unlikely given the nature of site activities.

Nonetheless, to minimize and eliminate the potential for any emergency situations, pre-emergency planning activities will include the following (which are the responsibility of the FOL):

- Coordinating with local Emergency Response personnel to ensure that TtNUS emergency action activities are compatible with existing emergency response procedures. Base Fire Protection and Emergency Services will be notified of scheduled events and activities. This is most imperative in situations where their services may be required such as confined space entry.
- Establishing and maintaining information at the project staging area (support zone) for easy access in the event of an emergency. This information will include the following:
 - Chemical Inventory (of chemicals used onsite), with Material Safety Data Sheets.
 - Onsite personnel medical records (Medical Data Sheets).
 - A log book identifying personnel onsite each day.
 - Hospital route maps with directions (these should also be placed in each site vehicle).
 - Emergency Notification - phone numbers.

The TtNUS FOL will be responsible for the following tasks:

- Identifying a chain of command for emergency action.
- Educating site workers to the hazards and control measures associated with planned activities at the site, and providing early recognition and prevention, where possible.
- Periodically performing practice drills to ensure site workers are familiar with incidental response measures.
- Providing the necessary equipment to safely accomplish identified tasks.

2.3 EMERGENCY RECOGNITION AND PREVENTION

2.3.1 Recognition

Emergency situations that may be encountered during site activities will generally be recognized by visual observation. To adequately recognize chemical exposures, site personnel must have a clear knowledge of signs and symptoms of exposure associated with site contaminants. This information is provided in Table 6-1. Tasks to be performed at the site, potential hazards associated with those tasks and the recommended control methods are discussed in detail in Sections 5.0 and 6.0. Additionally, early recognition of hazards will be supported by periodic site surveys to identify any situation predisposed to an emergency. The FOL will be responsible for performing surveys of work areas prior to initiating site

operations and periodically while operations are being conducted. Survey findings will be documented by the FOL in the site logbook, however, all site personnel will be responsible for reporting hazardous situations. Where potential hazards exist, TtNUS will initiate control measures to prevent adverse effects to human health and the environment.

The above actions will provide early recognition for potential emergency situations, and allow TtNUS to initiate necessary control measures. However, if the FOL determines that control measures are not sufficient to eliminate the hazard, TtNUS will withdraw from the site and notify the appropriate response agencies listed in Table 2-1.

2.3.2 Prevention

TtNUS and subcontractor personnel will minimize the potential for emergencies by following this HASP, the Health and Safety Guidance Manual, and applicable OSHA regulations. Periodic site surveys of work areas and correction of any identified deficiencies prior to the commencement of that day's activities by the FOL will also assist in prevention of illness/injuries when hazards are recognized early and control measures initiated.

2.4 EVACUATION ROUTES, PROCEDURES, AND PLACES OF REFUGE

An evacuation will be initiated whenever recommended hazard controls are insufficient to protect the health, safety or welfare of site workers. Specific examples of conditions that may initiate an evacuation include, but are not limited to the following: severe weather conditions; fire or explosion; evidence of personnel overexposure to potential site contaminants and discovering compromised drums.

In the event of an emergency requiring evacuation, all personnel will immediately stop activities and report to the designated safe place of refuge unless doing so would pose additional risks. When evacuation to the primary place of refuge is not possible, personnel will proceed to a designated alternate location and remain until further notification from the TtNUS FOL. Safe places of refuge will be identified prior to the commencement of site activities by the FOL and will be conveyed to personnel as part of the pre-activities briefing session. This information will be reiterated during daily safety meetings and indicated on the Safe Work Permits. Whenever possible, the safe place of refuge will also serve as the telephone communications point for that area. During an evacuation, personnel will remain at the refuge location until directed otherwise by the TtNUS FOL or the on-site Incident Commander of the Emergency Response Team. The FOL will perform a head count at this location to account for and to confirm the location of all site personnel. Emergency response personnel will be immediately notified of any unaccounted personnel. The FOL will document the names of all personnel onsite (on a daily basis) in the

site Health and Safety Logbook. This information will be utilized to perform the head count in the event of an emergency.

Evacuation procedures will be discussed during the pre-activities training session, prior to the initiation of project tasks. Evacuation routes from the site and safe places of refuge are dependent upon the location at which work is being performed and the circumstances under which an evacuation is required. Additionally, site location and meteorological conditions (i.e., wind speed and direction) may dictate evacuation routes. As a result, assembly points will be selected and communicated to the workers relative to the site location where work is being performed. Evacuation should always take place in an upwind direction from the site and away from water bodies.

2.5 EMERGENCY ALERTING AND ACTION/RESPONSE PROCEDURES

TtNUS personnel will likely be working in close proximity to each other during planned site activities. Site personnel will initiate emergency notification to all onsite personnel by voice commands, hand signals, vehicle horns, or line of site communication to alert site personnel of an emergency. When project tasks are performed simultaneously on different sites, radios will be used to communicate emergency situations and request assistance. The Fire Department will provide rescue services, if needed, during confined space entry operations. The details for notification must be documented in the permit.

If an emergency warranting evacuation occurs, the following procedures are to be initiated:

- Initiate the evacuation via appropriate and/or available communication method (hand signals, voice commands, etc.).
- Report to the designated refuge point.
- Once all non-essential personnel are evacuated, appropriate response procedures will be enacted to control the situation.
- Describe to the FOL (serving as the Incident Coordinator) pertinent incident details.

In the event that site personnel cannot mitigate the hazardous situation, the FOL will enact emergency notification procedures to secure additional assistance in the following manner:

Contact pertinent emergency contacts listed in Table 2-1 and report the incident. Give the emergency operator the location of the emergency, the type of emergency, the number of injured, and a brief description of the incident. Stay on the phone and follow the instructions given by the operator. The operator will then notify and dispatch the proper emergency response agencies.

2.6 EMERGENCY CONTACTS

Prior to initiating field activities, all personnel will be thoroughly briefed on the emergency procedures to be followed in the event of an accident. Table 2-1 provides a list of emergency contacts and their associated telephone numbers. This table must be posted where it is readily available to all site personnel. Facility maps should also be posted showing potential evacuation routes and designated meeting areas.

**TABLE 2-1
EMERGENCY REFERENCE
INDIAN HEAD DIVISION - NSWC**

AGENCY	TELEPHONE
EMERGENCY (fire, ambulance, rescue, police)	911
Site Point of Contact Shawn Jorgensen	(301)743-6745
Hospital: Civista Medical Center	(301) 609-4000
Hospital: Southern Maryland Hospital	(301) 868-8000
National Capital Poison Center	(202) 625-3333
Chemtrec	(800) 424-9300
National Response Center	(800) 424-8802
TtNUS, Pittsburgh Office	(412) 921-7090
Health and Safety Manager Matthew M. Soltis, CIH, CSP	(412) 921-8912
Project Manager George Latulippe, PE	(412) 921-8684
Project Health and Safety Officer James K. Laffey	(412) 921-8678
Project Engineer Kelly Smay	(412) 921-8750

2.7 EMERGENCY ROUTES TO HOSPITALS

The closest hospital to the IHDIV-NSWC is the Civista Medical Center in La Plata, Maryland. The alternate hospital is Southern Maryland Hospital in Clinton, Maryland. Maps showing the proximity of the IHDIV-NSWC to both of the hospitals are included as Figure 2-1 and 2-1A. Directions and maps to both Civista Medical Center and Southern Maryland Hospital are provided below:

Civista Medical Center
701 East Charles Street,
La Plata, MD 20646
(301) 609-4000

Exit the facility **[S]** and proceed South on Bensville Road (Rt. 228) for approximately 3 miles. At the junction of Bensville and Billingsley Road take a left onto Billingsley Road. Proceed on Billingsley Road for approximately 5 miles to the junction of Route 301. Proceed South on Route 301 to La Plata, Maryland (approximately 6 miles). The hospital is on the right, about 1/2 block past the railroad tracks. **[E]**

Southern Maryland Hospital
7503 Surratts Road
Clinton, Maryland 20735
(301) 868-8000

Exit the facility **[S]** proceed North on Bensville Road (Rt. 228) for approximately 1 mile. Take a left onto Bealle Hill Road and proceed North for approximately 1.5 miles. At the junction of Rt. 373 turn right onto Rt. 373. Follow until intersection with Branch Ave. (MD Route 5). Turn left on Branch Ave., right on Surratts Road. The hospital is just past the Colony South Hotel. **[E]**

Figure 2-1

Route To Civista Medical Center

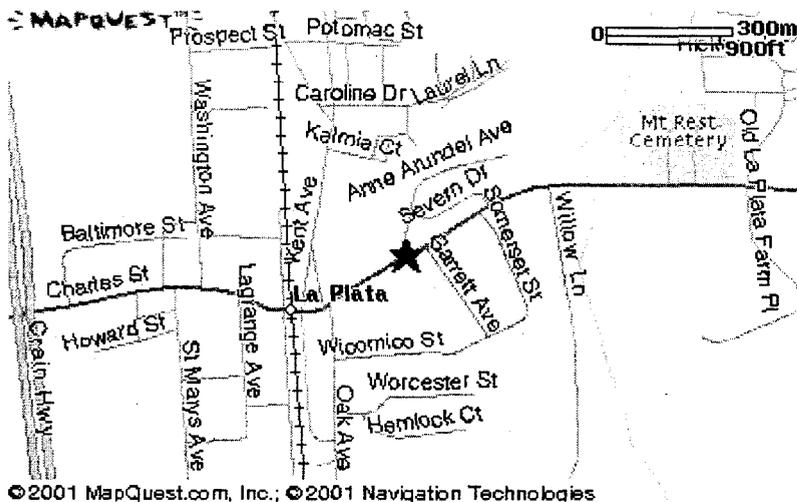
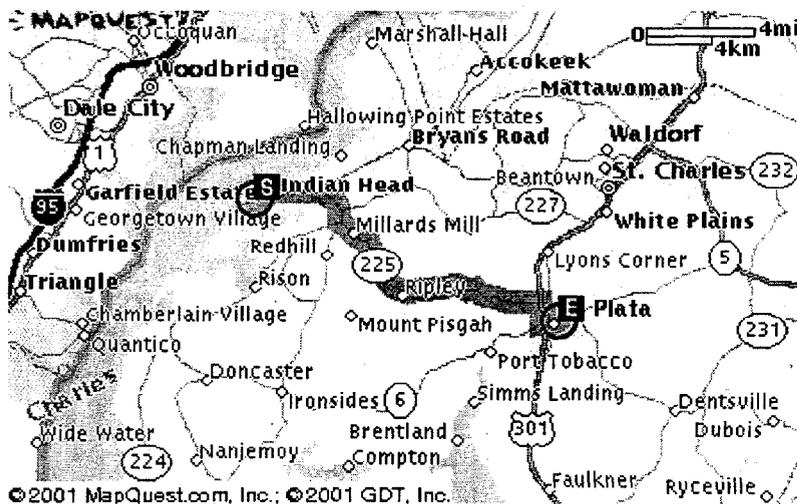
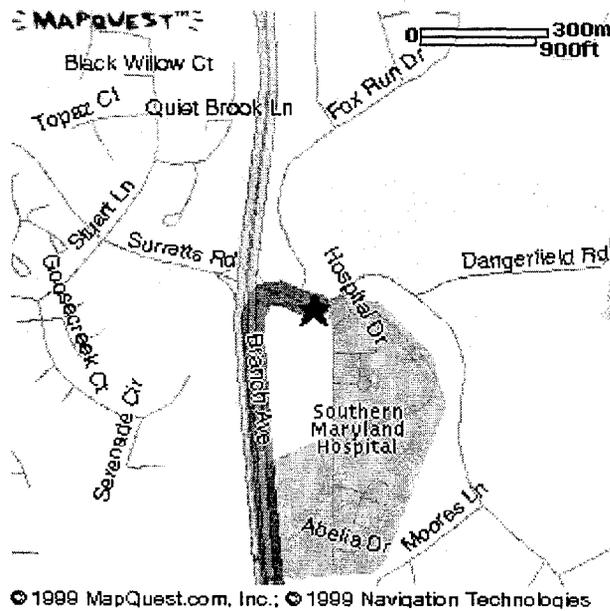
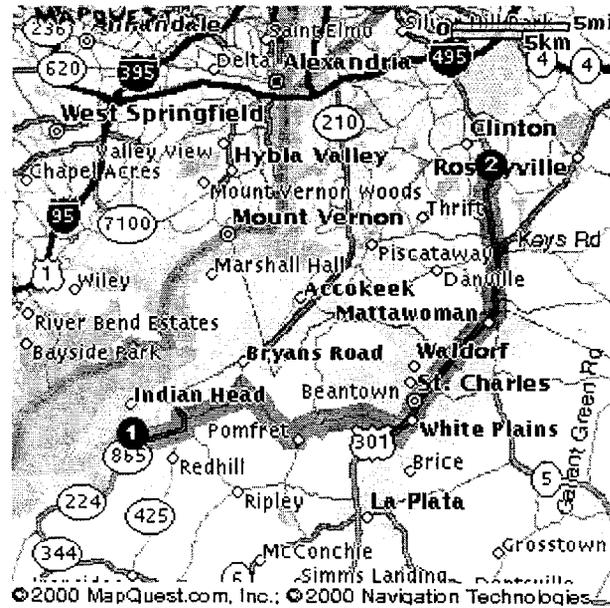


Figure 2-1.1

Route To Southern Maryland Hospital Center



2.8 DECONTAMINATION PROCEDURES / EMERGENCY MEDICAL TREATMENT

During any site evacuation, decontamination procedures will be performed only if doing so does not further jeopardize the welfare of site workers. Decontamination will not be performed if the incident warrants immediate evacuation. However, it is unlikely that an evacuation would occur which would require workers to evacuate the site without first performing the necessary decontamination procedures.

TtNUS personnel will perform removal of personnel from emergency situations and may provide initial medical support for injury/illnesses requiring only first-aid level support. Medical attention above that level will require assistance and support from the designated emergency response agencies. Attachment I provides the procedure to follow when reporting an injury/illness, and the form to be used for this purpose. If the emergency involves personnel exposures to chemicals, follow the steps provided in Figure 2-2.

2.9 INJURY AND ILLNESS REPORTING

Any pertinent information regarding allergies to medications or other special conditions will be provided to medical service personnel. This information is listed on Medical Data Sheets filed onsite (see Attachment II). If an exposure to hazardous materials has occurred, provide hazard information from Table 6-1 to medical service personnel. As soon as possible, Navy contact Shawn Jorgensen must be informed of any incident or accident that requires medical attention.

2.10 PPE AND EMERGENCY EQUIPMENT

A first-aid kit, eye wash units (or bottles of disposable eyewash solution) and a fire extinguisher will be maintained onsite and shall be immediately available for use in the event of an emergency. This equipment will be located in the field office or site vehicle. Personnel identified within the field crew with bloodborne pathogen and first-aid training will be the only personnel permitted to offer first-aid assistance.

FIGURE 2-2 EMERGENCY RESPONSE PROTOCOL

The purpose of this protocol is to provide guidance for the medical management of injury situations.

In the event of a personnel injury or accident:

- Rescue, when necessary, employing proper equipment and methods.
- Give attention to emergency health problems -- breathing, cardiac function, bleeding, and shock.
- Transfer the victim to the medical facility designated in this HASP by suitable and appropriate conveyance (i.e. ambulance for serious events)
- Obtain as much exposure history as possible (a Potential Exposure report is attached).
- If the injured person is a Tetra Tech NUS employee, call the medical facility and advise them that the patient(s) is/are being sent and that they can anticipate a call from the WorkCare physician. WorkCare will contact the medical facility and request specific testing which may be appropriate. WorkCare physicians will monitor the care of the victim. Site officers and personnel should not attempt to get this information, as this activity leads to confusion and misunderstanding.
- Call WorkCare at 1-800-455-6155 enter Extension 109, or follow the voice prompt for after hours and weekend notification, and be prepared to provide:
 - Any known information about the nature of the injury.
 - As much of the exposure history as was feasible to determine in the time allowed.
 - Name and phone number of the medical facility to which the victim(s) has/have been taken.
 - Name(s) of the involved Tetra Tech NUS, Inc. employee(s).
 - Name and phone number of an informed site officer who will be responsible for further investigations.
 - Fax appropriate information to WorkCare at (714) 456-2154.
- Contact Corporate Health and Safety Department (Matt Soltis) at 1-800-245-2730.

As data is gathered and the scenario becomes more clearly defined, this information should be forwarded to WorkCare.

WorkCare will compile the results of all data and provide a summary report of the incident. A copy of this report will be placed in each victim's medical file in addition to being distributed to appropriately designated company officials.

Each involved worker will receive a letter describing the incident but deleting any personal or individual comments. A personalized letter describing the individual findings/results will accompany this generalized summary. A copy of the personal letter will be filed in the continuing medical file maintained by WorkCare.

**FIGURE 2-2 (continued)
POTENTIAL EXPOSURE REPORT**

Name: _____ Date of Exposure: _____
Social Security No.: _____ Age: _____ Sex: _____
Client Contact: _____ Phone No.: _____
Company Name: _____

I. Exposing Agent

Name of Product or Chemicals (if known): _____

Characteristics (if the name is not known)

Solid Liquid Gas Fume Mist Vapor

II. Dose Determinants

What was individual doing? _____

How long did individual work in area before signs/symptoms developed? _____

Was protective gear being used? If yes, what was the PPE? _____

Was there skin contact? _____

Was the exposing agent inhaled? _____

Were other persons exposed? If yes, did they experience symptoms? _____

III. Signs and Symptoms (check off appropriate symptoms)

Immediately With Exposure:

Burning of eyes, nose, or throat

Tearing

Headache

Cough

Shortness of Breath

Chest Tightness / Pressure

Nausea / Vomiting

Dizziness

Weakness

Delayed Symptoms:

Weakness

Nausea / Vomiting

Shortness of Breath

Cough

Loss of Appetite

Abdominal Pain

Headache

Numbness / Tingling

IV. Present Status of Symptoms (check off appropriate symptoms)

Burning of eyes, nose, or throat

Tearing

Headache

Cough

Shortness of Breath

Chest Tightness / Pressure

Cyanosis

Nausea / Vomiting

Dizziness

Weakness

Loss of Appetite

Abdominal Pain

Numbness / Tingling

Have symptoms: (please check off appropriate response and give duration of symptoms)

Improved: _____ Worsened: _____ Remained Unchanged: _____

V. Treatment of Symptoms (check off appropriate response)

None: _____ Self-Medicating: _____ Physician Treated: _____

3.0 SITE BACKGROUND

3.1 FACILITY HISTORY

The IHDIV-NSWC is located in northwestern Charles County, Maryland, approximately 25 miles southwest of Washington, DC. The IHDIV-NSWC is a military facility consisting of the main area on the Cornwallis Neck Peninsula and the Annex on Stump Neck. The main area is bounded by the Potomac River to the northwest, west, and south, Mattawoman Creek to the south and east, and the town of Indian Head to the northeast. Stump Neck Annex is located across Mattawoman Creek. The Stump Neck Annex is not contiguous with the main area and is operated by a tenant. The primary mission of IHDIV-NSWC is to provide services in energetics, ordnance devices and components, and other related ordnance engineering standards, including chemicals, propellants, and their propulsion systems, explosives, pyrotechnics, warheads, and simulators. The United States Environmental Protection Agency (EPA) added IHDIV-NSWC to the National Priorities List (NPL) in September 1995, pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980. There are 48 sites at the main facility currently included in the IHDIV-NSWC Installation Restoration (IR) Program. Activities conducted under this HASP will occur at the following eight sites.

3.2 SITE 32 - SUSPECTED TOOL BURIAL

It is believed that special beryllium-copper alloy hand tools used in explosive ordnance disposal work had been buried in the vicinity of Building 31 SN. The area around the building was paved with asphalt.

3.3 SITE 33 - SCRAP METAL PIT

An excavation, 10 feet by 10 feet by 30 feet long, was reported to contain scrap metal in the area. The metal was said to consist of parts of mines, torpedoes, and other explosive-inert items.

3.4 SITE 34 - TOOL BURIAL

Beryllium -copper alloy hand tools were reported near Building D-21C. There were two burial holes, each about 5 feet by 15 feet by 12 feet deep. The volume of tools in each pit is said to be about 5 feet by 8 feet by 2 feet. The tools were hand tools such as hammers, wrenches, screwdrivers, pliers, scrapers, and knives. These tools were used in Explosive Ordnance Disposal (EOD) work because they are nonmagnetic and nonsparking.

3.5 SITE 36 - CLOSED LANDFILL

The initial Assessment Study reported that there was a landfill in this area. The filled area was a wetland or marsh. The filled, leveled ground occupied an area of approximately 1 to 2 acres. Grass and other low vegetation covered most of the site. The fill was believed to contain metal casings such as mines, bombs, and torpedoes. The contents were claimed to have been certified inert and did not contain any explosives or chemicals when buried. The landfill was active between 1972 to 1974. A site inspection revealed evidence of small metal parts in the surface soil which was a gravelly-clay fill material.

3.6 SITE 37 - CAUSEWAY

The access road to the ranges at Stump Neck crosses a narrow neck of land which has been built up with fill materials. An allegation was made that the causeway fill perhaps contains hazardous materials in addition to rubble. An on-site inspection showed generous use of large concrete slabs to protect the Potomac River side of the roadway from erosion for a distance of 300 to 400 feet. There was no visual evidence of hazardous material on site.

3.7 SITE 42 - OLSEN ROAD LANDFILL

The Olsen Road Landfill includes the 2-acre area containing the Assembly Building 1688 and the undeveloped land southwest of the building. The site slopes to the south in the area of Building 1688, with steeper grades to the southwest and west in the undeveloped portion of the site. Debris visible in the undeveloped portion of the site includes construction rubble (asphalt and concrete), unlabeled cans and drums, wooden pallets, and branches. The topography has changed over time, indicating the possibility of filling. Between 1982 and 1987, prior to construction of Assembly Building 1 in 1992, the 2-acre area was used as an unauthorized disposal site for solid wastes.

3.8 SITE 51 - BUILDING 101 DRY WELL AND SITE 52 - BUILDING 102 DRY WELL.

Buildings 101 and 102 are located in the restricted area of the base near Thames and Evans Roads. The IHDIV-NSWC personnel interviewed spoke of a flash tank room and dry well near Building 102. There was speculation as to whether the flash tank was used to vaporize volatile components of a laboratory waste stream and whether the dry well had received the remaining liquid phase of the waste. Navy documents revealed dry wells at both Buildings 101 and 102. The flash tank detail, dry well detail, and the utilities site plan show a 1-inch steam condensate line leading to the dry wells. No wastewater lines lead to the dry wells. The crushed stone of the dry wells was two feet below grade, making them difficult to locate and access. It is unlikely that any surface disposal took place at the well locations. The flash tank/steam condensate system no longer exists.

4.0 SCOPE OF WORK

This section of the HASP addresses proposed activities that are to be conducted at the eight sites at IHDIV-NSWC. The activities to be conducted as part of the scope of work include mobilization/demobilization, multi-media sampling and decontamination activities. Table 5-1, provides information related to each of these tasks that are to be performed as part of the scope of work. If other tasks, other than those identified, are to be performed at the site, this HASP will be modified.

- Mobilization/demobilization
- Monitoring Well Installation
- Soil Boring using Hollow Stem Augering
- Multi-media sampling, including
 - Subsurface soils
 - Groundwater
 - Surfacewater
 - Sediment
- Excavation
 - Test Pits
 - Burial Areas
- Decontamination of sampling and heavy equipment
- IDW management. This task includes the containerization, labeling, staging, monitoring, and final deposition of Investigation Derived Wastes (IDW).
- Utility and Geophysical Survey

5.0 TASKS/HAZARDS/ASSOCIATED CONTROL MEASURES SUMMARIZATION

Table 5-1 of this section serves as the primary portion of the site-specific HASP and identifies the tasks that are to be performed as part of the scope of work. This table will be modified and incorporated into this document as new or additional tasks are performed at the site. The anticipated hazards, recommended control measures, air monitoring recommendations, required Personal Protective Equipment (PPE), and decontamination measures for each site task are discussed in detail. This table and the associated control measures shall be changed, if the scope of work, contaminants of concern, or other conditions change.

Through using the table, site personnel can determine which hazards are associated with each task and at each site, and what associated control measures are necessary to minimize potential exposure or injuries related to those hazards. The table also assists field team members in determining which PPE and decontamination procedures to use as well as proper air monitoring techniques.

As discussed earlier, a Health and Safety Guidance Manual accompanies this table and HASP. The manual is designed to further explain supporting programs and elements for other site-specific aspects as required by 29 CFR 1910.120. The Guidance Manual should be referenced for additional information regarding decontamination activities, emergency response, hazard assessments, hazard communication program, medical surveillance, PPE, site control measures, standard work practices, and training requirements. Many of Tetra Tech NUS' SOPs are also provided in this Guidance Manual.

Safe Work Permits issued for sampling activities (See Section 10.10) will use elements defined in Table 5-1 as it's primary reference. The FOL in completing the Safe Work Permit will add additional site-specific information. In situations where the Safe Work Permit is more conservative than the direction provided in Table 5-1 due to the incorporation of site-specific elements, the Safe Work Permit will be followed.

5.1 GENERAL SAFE WORK PRACTICES

In addition to the task-specific work practices identified on Table 5-1, follow these safe work practices when conducting work involving known and unknown site hazards. These safe work practices establish a pattern of general precautions and measures for reducing risks associated with hazardous site operations.

- Eating, drinking, chewing gum or tobacco, taking medication, or smoking is permitted in the support zone only.

- Wash hands and face thoroughly upon leaving a contaminated or suspected contaminated area. A thorough shower and washing must be conducted as soon as possible if excessive skin contamination occurs.
- Avoid contact with potentially contaminated substances by walking around puddles, pools, mud, or other such areas. Avoid, whenever possible, kneeling on the ground or leaning or sitting on equipment. Do not place monitoring equipment on potentially contaminated surfaces.
- Be familiar with and adhere to all instructions in the site-specific HASP.
- Be aware of the location of the nearest telephone and all emergency telephone numbers.
- Attend briefings on anticipated hazards, equipment requirements, Safe Work Permits, emergency procedures, and communication methods before going on site.
- Rehearse unfamiliar operations prior to implementation.
- Maintain visual contact with each other and with other on-site team members by remaining in close proximity in order to assist each other in case of emergency.
- Establish appropriate Safety Zones including Support, Contamination Reduction, and Exclusion Zones.
- Minimize the number of personnel and equipment in contaminated areas (such as the Exclusion Zone). Non-essential vehicles and equipment should remain within the Support Zone.
- Establish appropriate decontamination procedures for leaving the site.
- Immediately report all injuries, illnesses, and unsafe conditions, practices, and equipment to the Site Safety Officer (SSO).
- Observe coworkers for signs of toxic exposure and heat or cold stress.
- Inform co-workers of potential symptoms of illness, such as headaches, dizziness, nausea, or blurred vision.

5.2 DRILLING SAFE WORK PRACTICES

The following Safe Work Practices are to be followed when working in or around Drill Rig Operations.

5.2.1 Before Drilling

- Identify all underground utilities and buried structures before drilling. Use the Utility Locating and Excavation Clearance Standard Operating Procedure provided in Attachment III.
- All drill rigs will be inspected by a competent person (the SSO or designee), prior to the acceptance of the equipment at the site and prior to the use of the equipment. All repairs or deficiencies identified will be corrected prior to use. The inspection will be accomplished using the Equipment Inspection Checklist provided in Attachment IV. Inspection frequencies will be once every shift (either 5 or 10 day) or following repairs.
- The work area around the point of operation will be graded to the extent possible to remove any trip hazards near or surrounding rotating equipment.
- The drillers helper will establish an equipment staging and lay down plan. The purpose of this is to keep the work area clear of clutter and slips, trips, and fall hazards. Mechanisms to secure heavy objects such as drill flights will be provided to avoid the collapse of stacked equipment.
- All potentially contaminated tooling will be wrapped in polyethylene sheeting for storage and transport to the centrally located decontamination unit.

5.2.2 During Drilling

- Secure frayed or loose clothing, hair, and jewelry when working with rotating equipment.
- Minimize contact to the extent possible with contaminated tooling and environmental media.
- Support functions (sampling and screening stations) will be maintained a minimum distance from the drill rig of the height of the mast plus five feet to remove these activities from within physical hazard boundaries.
- Only qualified operators and knowledgeable ground crew personnel will participate in the operation of the drill rig.

- In order to minimize contact with potentially contaminated tooling and media and to minimize lifting hazards, multiple personnel should move auger flights and other heavy tooling.
- Only personnel absolutely essential to the work activity will be allowed in the exclusion zone. Site visitors will be escorted at all times.

5.2.3 After Drilling

- All equipment used within the exclusion zone will undergo a complete decontamination and evaluation by the SSO to determined cleanliness prior to moving to the next location, exiting the site, or prior to down time for maintenance.
- All motorized equipment will be fueled prior to the commencement of the days activities. During fueling operations all equipment will be shutdown and bonded to the fuel provider.
- When not in use all drill rigs will be shutdown, emergency brakes set, and wheels chocked.
- All areas subjected to subsurface investigative methods will be restored to equal or better condition than original to remove any contamination brought to the surface and to remove any physical hazards. In situations where these hazards cannot be removed these areas will be barricaded to minimize the impact on field crews working in the area.

5.3 EXCAVATION SAFE WORK PRACTICES

- Remote samplers will be used to collect samples from test pits or from the backhoe bucket.
- Personnel must remain two feet from the edge of a test pit. Never lean over a test pit.
- Always stand upwind from the test pit and away from the reach of the backhoe, tires, and outrigger.
- Unstable pits must be sloped at the sides to prevent cave-in.
- Establish hand signals with the backhoe operator.
- Never leave a test pit unattended, under any circumstances.
- The backhoe operator shall never undermine the excavation.
- The SSO shall frequently inspect the test pits for slide or cave-in potential.
- All work areas must be kept free of ground clutter.
- When in operation all personnel will remain more than three feet from the boom.

TABLE 5-1
TASKS/HAZARDS/CONTROL MEASURES SUMMARIZATION
INDIAN HEAD DIVISION NAVAL SURFACE WARFARE CENTER, INDIAN HEAD, MARYLAND

Task/Operation/ Location	Anticipated Hazards	Recommended Control Measures	Hazard Monitoring Type/Action Levels	Personal Protective Equipment <i>(Italicized items are optional as conditions require)</i>	Decontamination Procedures
<p>Mobilization/ Demobilization</p> <p>All Sites</p>	<p><i>Chemical hazards:</i></p> <p>1) The on-site Hazard Communication Program will be followed. All chemicals brought onto the site by Tetra Tech NUS, Inc. and subcontractor personnel will be inventoried and have an MSDS on site. This effort shall include</p> <ul style="list-style-type: none"> - A Chemical Inventory List - MSDS's will be maintained in a central location, accessible to all personnel. <p>All containers will have labels specifying the following information:</p> <ul style="list-style-type: none"> - Chemical Identity (As it appears on the label, MSDS, and Chemical Inventory List) - Appropriate Warning (i.e., eye and skin irritation, flammable, etc.) - Manufacturer's Name Address and Phone Number <p><i>Physical hazards:</i></p> <ol style="list-style-type: none"> 2) Lifting (strain/muscle pulls) 3) Pinches and compressions 4) Slip, trips, and falls 5) Heavy equipment hazards (rotating or moving equipment, hydraulic lines, etc.) 6) Vehicular and foot traffic 7) Ambient temperature extremes (heat/cold stress) <p><i>Natural hazards:</i></p> <ol style="list-style-type: none"> 8) Inclement weather 	<p>1) All personnel will be required to review the appropriate MSDS's, prior to the use of a specified chemical substance. This direction should also be communicated on the Safe Work Permit completed for this task.</p> <p>2) Use machinery or multiple personnel for heavy lifts. Use proper lifting techniques.</p> <ul style="list-style-type: none"> - Lift with your legs, not your back, bend your knees move as close to the load as possible, and ensure good hand holds are available. - Minimize the horizontal distance to the center of the lift to your center of gravity. Minimize turning and twisting when lifting as the lower back is especially vulnerable at this time. Break lifts into steps if the vertical distance (from the start point to the placement of the lift) is excessive. <p>Plan your lifts – Place heavy items on shelves between the waist and chest; lighter items on higher shelves.</p> <p>Periods of high frequency lifts or extended duration lifts should provide sufficient breaks to guard against fatigue and injury.</p> <p>In determining whether you can lift an item several factors must be considered, these are as follows:</p> <ul style="list-style-type: none"> - Maximum weight lifted by a single person should not exceed 70 pounds. - Level of demand – Weight + frequency & duration. - Area available to maneuver the lift. - Area of the lift – Work place clutter, slippery surfaces - Overall physical condition <p>3) Keep any machine guarding in place. Avoid moving parts. Use tools or equipment where necessary to avoid contacting pinch points.</p> <p>4) Preview work locations for unstable/uneven terrain.</p> <p>5) All equipment will be</p> <ul style="list-style-type: none"> - Inspected in accordance with TiNUS Equipment Inspection Checklist (Attachment IV of this HASP), OSHA and manufacturer's design. - Operated by knowledgeable operators and ground crew. <p>6) Traffic and equipment considerations are to include the following:</p> <ul style="list-style-type: none"> - Establish safe zones of approach - All self-propelled equipment shall be equipped with movement warning systems. - All activities are to be conducted consistent with the Base traffic requirements. <p>7) Wear appropriate clothing for weather conditions. Provide acceptable shelter and liquids for field crews. Additional information regarding heat and cold stress is provided in Section 4 of the Health and Safety Guidance Manual.</p> <p>8) Suspend or terminate operations until directed otherwise by SSO.</p>	<p>Not required</p>	<p>Level D - (Minimum Requirements)</p> <ul style="list-style-type: none"> - Standard field attire (Sleeved shirt; long pants) - Steel toe safety shoes or work boots - Safety glasses - Hardhat (when working near operating heavy equipment or whenever overhead hazards exists, or identified as a operation requirement) - Reflective vest for high traffic areas - Hearing protection for high noise areas, or as directed on an operation by operation scenario. <p>Note: The Safe Work Permit(s) for this task (see Attachment V) will be issued at the beginning of each day to address the tasks planned for that day. As part of this task, additional PPE may be assigned to reflect site-specific conditions or special considerations or conditions associated with any identified task.</p>	<p>Not required</p>

TASKS/HAZARDS/CONTROL MEASURES SUMMARIZATION
INDIAN HEAD DIVISION NAVAL SURFACE WARFARE CENTER, INDIAN HEAD, MARYLAND

Task/Operation/ Location	Anticipated Hazards	Recommended Control Measures	Hazard Monitoring Type/Action Levels	Personal Protective Equipment <i>(Italicized items are optional as conditions require)</i>	Decontamination Procedures
<p>Excavation of Test Pits and Tool Burial Areas</p> <p>Site 32 - Tool Burial Site 33 - Scrap Metal Burial Site 34 - Tool Burial Site 37 - Causeway Site 51 - Building 101 Dry Well Site 52 - Building 102 Dry Well</p> <p>Site 42 - Olsen Road Landfill</p>	<p><i>Chemical hazards:</i></p> <p>1) Potential site contaminants vary by individual location. Based on historical information potential site contaminants may include the following contaminants (Based maximum historical detection):</p> <p>Site 32 - Tool Burial Site 33 - Scrap Metal Burial Site 34 - Tool Burial Metals and Explosives</p> <p>Site 37 - Causeway VOCs, SVOCs, metals, explosives and PCBs</p> <p>Site 51 - Building 101 Dry Well Site 52 - Building 102 Dry Well VOCs</p> <p>Site 42 - Olsen Road Landfill VOCs (Trichloroethylene, Vinyl chloride, Xylene); SVOCs; Metals; and PCBs</p> <p>2) Transfer of contamination into clean areas or onto persons.</p> <p><i>Physical hazards:</i></p> <p>3) Moving machinery 4) Collapse of the excavation 5) Energized systems 6) Noise 7) Site Control - Foot and equipment traffic 8) Inclement weather and heat and cold stress</p>	<p>1) Use real-time monitoring instrumentation, action levels, and identified PPE to control exposures to potentially contaminated media (air, water, soils, etc.). Generation of dusts should be minimized. If airborne dusts are observed, area wetting methods may be used. If area wetting methods are not feasible, termination of activities may be used to minimize exposure to excessive airborne dusts.</p> <p>2) Restrict the cross-use of equipment and supplies from remedial activities, handling clean fill, and general construction services without first going through a suitable decontamination.</p> <p>3) To minimize potential equipment based physical hazards, the FOL/SSO will be required to</p> <ul style="list-style-type: none"> - Inspect equipment in accordance with Federal safety and transportation guidelines, OSHA (1926.600, 601, 602), and manufacturer's design, and documented as such using Equipment Inspection Checklist (Attachment IV). - The equipment must be operated by knowledgeable operators and ground crew. - Establish safe routes of approach and work zones to prevent being struck by equipment. <p>4) All excavations shall be in conformance with requirements established under 29 CFR 1926.650 - .652 concerning sloping, shoring, storage, and movement on and over and around trenches and excavations.</p> <ul style="list-style-type: none"> - Personnel will NOT enter any excavation. - All supplies, excavation spoils, clean fill, and vehicular traffic will be maintained at a minimum distance of 3 feet from the excavation, or 2 feet if a sidewall restraining device is used. <p>5) To avoid hazards associated with energized systems utility clearances will be obtained prior to any excavation activities. See Attachment III of this HASP Utility Locating and Excavation Clearance SOP.</p> <ul style="list-style-type: none"> - Excavations shall proceed with extreme caution and proceed using cable and piping locators, fiberglass probes, or other geophysical detection methods to avoid utility damage. This activity will proceed to a minimum depth of 4 feet. - Should applicable distances not be obtainable, activities cannot be performed until electric and other utilities leading to work areas are disconnected, re-routed, or shielded. <p>6) Excessive noise levels will be controlled through the use of hearing protection. Anticipated excessive noise level operations include the following:</p> <ul style="list-style-type: none"> - Heavy equipment operation including Track-hoes and multi-axle vehicles, etc. <p>7) Site Control measures for Foot/Traffic and equipment considerations are to include the following:</p> <ul style="list-style-type: none"> - Establish safe zones of approach (i.e. Boom Swing + 5 feet). - Secure all loose articles to avoid possible entanglement. - All equipment shall be equipped with movement warning systems. - Employ safety belts and follow the site traffic rules. - Ground personnel working within or near the swing path of the track-hoe shall wear High visibility reflective vests. - Minimize the number of persons within the exclusion zone to essential personnel only. - Only the ground spotter direct the operator concerning excavation activities. <p>8) All operations will be temporarily suspended during inclement weather events such as electrical storms, or conditions where visibility is reduced. Wear appropriate clothing for weather conditions. Provide acceptable shelter and liquids for field crews. Additional information regarding heat stress is provided in Section 4 of the Health and Safety Guidance Manual.</p>	<p>A Photoionization Detector (PID) with an 10.6 eV lamp source (or higher) will be used as a general screening instrument to detect volatile organic compounds and to evaluate airborne concentrations of potential site contaminants:</p> <p>Source areas (test pits, sample locations, spoil piles, etc.) will be monitored using a PID at regular intervals to be determined by the SSO. Positive sustained results at a source or downwind location(s) which may impact operations crew will require the following actions:</p> <p>Monitor the breathing zone of at-risk and downwind employees.</p> <p>For VOCs</p> <ul style="list-style-type: none"> - Any sustained reading (greater than 1 minute in duration) above background in the worker's breathing zone- retreat to an unaffected area. <p>For Visible Dusts (>2.0 mg/m³)</p> <ul style="list-style-type: none"> - Requires site activities to be suspended and site personnel to report to an unaffected area. <p>*For Vinyl Chloride</p> <ul style="list-style-type: none"> - Any sustained PID reading in the workers breathing zone - verify Vinyl Chloride using by using a Vinyl Chloride 0.5/b colorimetric tube - Any positive indications of Vinyl Chloride in the worker breathing zone will require site personnel to report to an unaffected area. <p>Work may only resume if airborne readings in worker breathing zone return to background levels or if the appropriate level of protection has been incorporated. If elevated readings in worker breathing zone persist, the PHSO and HSM will be contacted to determine necessary actions and levels of protection.</p> <p>(*) Only on Site 42</p>	<p>Tetra Tech NUS personnel will conduct operations in Level D protection.</p> <p>Level D protection constitutes the following minimum protection</p> <ul style="list-style-type: none"> - Standard field dress (long pants, sleeved shirts) - Steel toe safety shoes or work boots - Chemical resistant over-boots - Tyvek coveralls - Nitrile gloves - Hard-hat, safety glasses, and earplugs or muffs. - <i>PVC or PE coated Tyvek will be incorporated if there is a potential for saturation of work attire.</i> <p>Note: The Safe Work Permit(s) for this task (see Attachment V) will be issued at the beginning of each day to address the tasks planned for that day. As part of this task, additional PPE may be assigned to reflect site-specific conditions or special considerations or conditions associated with any identified task or more conservative requirements identified.</p>	<p>Personnel Decontamination - Will consist of a soap/water wash and rinse for outer protective equipment (e.g., boots, gloves, PVC splash suits, etc.). This will take place at an area adjacent to the test pitting operations bordering the support zone.</p> <p>Level D Decontamination</p> <ul style="list-style-type: none"> - Equipment drop - Soap/water wash and rinse of reusable PPE (e.g., overboots), as applicable - Removal and disposal of disposable PPE items (gloves, disposable boot covers, etc) - Wash hands and face, leave contamination reduction zone. - Report for medical/cold stress monitoring as applicable. <p>Equipment decontamination:</p> <p>After completing personal decontamination, take bagged respiratory protection to a clean area. Then clean/disinfect, inspect and properly store the device.</p> <p>All sampling and reusable equipment will undergo a soap/water wash and rinse utilizing a suitable potable water source until visibly clean.</p> <p>Sampling equipment may also be high pressure soap/water wash and rinse or steam cleaned.</p> <p>All chemical decontamination will proceed in accordance with the other site documents such as Field Sampling Plan.</p>

TABLE 5-1

TASKS/HAZARDS/CONTROL MEASURES SUMMARIZATION
INDIAN HEAD DIVISION NAVAL SURFACE WARFARE CENTER, INDIAN HEAD, MARYLAND

Task/Operation/ Location	Anticipated Hazards	Recommended Control Measures	Hazard Monitoring Type/Action Levels	Personal Protective Equipment <i>(Italicized items are optional as conditions require)</i>	Decontamination Procedures
<p>Soil borings using hollow-stem auger techniques.</p> <p>Site 32 - Tool Burial Site 33 - Scrap Metal Burial Site 34 - Tool Burial Site 37 - Causeway Site 51 - Building 101 Dry Well Site 52 - Building 102 Dry Well</p> <p>Site 42 - Olsen Road Landfill</p>	<p><i>Chemical hazards:</i></p> <p>1) Potential site contaminants vary by individual location. Based on historical information potential site contaminants may include the following contaminants (Based maximum historical detection):</p> <p>Site 32 - Tool Burial Site 33 - Scrap Metal Burial Site 34 - Tool Burial Metals and Explosives</p> <p>Site 37 - Causeway VOCs, SVOCs, metals, explosives and PCBs</p> <p>Site 51 - Building 101 Dry Well Site 52 - Building 102 Dry Well VOCs</p> <p>Site 42 - Olsen Road Landfill VOCs (Trichloroethylene, Vinyl chloride, Xylene); SVOCs; Metals; and PCBs</p> <p>2) Transfer of contamination into clean areas or onto persons</p> <p><i>Physical hazards:</i></p> <p>3) Heavy equipment hazards (pinch/compression points, rotating equipment, hydraulic lines, etc.) 4) Noise in excess of 85 dBA 5) Energized systems (contact with underground or overhead utilities) 6) Lifting (strain/muscle pulls) 7) Ambient temperature extremes (heat stress) 8) Slip, trips, and falls 9) Vehicular and foot traffic 10) Flying projectiles</p> <p><i>Natural hazards:</i></p> <p>11) Inclement weather</p>	<p>1) Use real-time monitoring instrumentation, action levels, and identified PPE to control exposures to potentially contaminated media (air, water, soils, etc.). Generation of dusts should be minimized. If airborne dusts are observed, area wetting methods may be used. If area wetting methods are not feasible, termination of activities may be used to minimize exposure to excessive airborne dusts.</p> <p>2) Decontaminate all equipment and supplies between sampling locations and prior to leaving the site.</p> <p>3) All equipment to be used will be:</p> <ul style="list-style-type: none"> - Inspected in accordance with Federal safety and transportation guidelines, OSHA (1926.600, 601, 602), and manufacturers design and documented as such using Equipment Inspection Sheet (see Attachment IV of this HASP). - Operated by knowledgeable operators and ground crew. - Repaired using only manufacturer approved parts and equipment. <p>In addition to the equipment considerations, the following standard operating procedures will be employed:</p> <ul style="list-style-type: none"> - All personnel not directly supporting the drilling operation will remain a distance from the point of operation equal to the mast length plus 5 feet. - All loose clothing/protective equipment will be secured to avoid possible entanglement. - Hand signals will be established prior to the commencement of drilling activities. - Work areas will be kept clear of clutter. - All personnel will be instructed in the location and operation of any available emergency shut off device(s). These devices will be tested initially (and then periodically) to insure operational status. - Areas will be inspected prior to the movement of drill rigs and support vehicles to eliminate any physical hazards. This will be the responsibility of the FOL and/or SSO. <p>4) Hearing protection will be used during all subsurface activities.</p> <p>5) All subsurface activities must be conducted following the requirements of the Tetra Tech NUS SOP for "Utility Locating and Excavation Clearance (Attachment III of this HASP). All utility clearances must be obtained, in writing, prior to subsurface activities.</p> <p>6) Use machinery or multiple personnel for heavy lifts. Use proper lifting techniques. See Control Measures presented in this table for Mobilization/Demobilization.</p> <p>7) Wear appropriate clothing for weather conditions. Provide acceptable shelter and liquids for field crews. Additional information regarding heat stress is provided in Section 4 of the Health and Safety Guidance Manual</p> <p>8) Preview work locations for unstable/uneven terrain.</p> <p>9) Traffic and equipment considerations are to include the following:</p> <ul style="list-style-type: none"> - Establish safe zones of approach (i.e. Boom + 5 feet). - All drill rig and other self-propelled equipment shall be equipped with movement warning systems. - All activities are to be conducted consistent with the local requirements. <p>10) Wear eye protection (safety glasses) when drill rig is operating. Personnel not having a need to be there must be restricted from the area.</p> <p>11) Suspend or terminate operations until directed otherwise by SSO.</p>	<p>A Photoionization Detector (PID) with an 10.6 eV lamp source (or higher) will be used as a general screening instrument to detect volatile organic compounds and to evaluate airborne concentrations of potential site contaminants:</p> <p>Source areas (test pits, sample locations, spoil piles, etc.) will be monitored using a PID at regular intervals to be determined by the SSO. Positive sustained results at a source or downwind location(s) which may impact operations crew will require the following actions:</p> <p>Monitor the breathing zone of at-risk and downwind employees.</p> <p>For VOCs</p> <ul style="list-style-type: none"> - Any sustained reading (greater than 1 minute in duration) above background in the worker's breathing zone- retreat to an unaffected area. <p>For Visible Dusts (>2.0 mg/m³)</p> <ul style="list-style-type: none"> - Requires site activities to be suspended and site personnel to report to an unaffected area. <p>*For Vinyl Chloride</p> <ul style="list-style-type: none"> - Any sustained PID reading in the workers breathing zone - verify Vinyl Chloride using by using a Vinyl Chloride 0.5/b colorimetric tube - Any positive indications of Vinyl Chloride in the worker breathing zone will require site personnel to report to an unaffected area. <p>Work may only resume if airborne readings in worker breathing zone return to background levels or if the appropriate level of protection has been incorporated. If elevated readings in worker breathing zone persist, the PHSO and HSM will be contacted to determine necessary actions and levels of protection.</p> <p><i>(*) Only on Site 42</i></p>	<p>All subsurface operations are to be initiated in Level D protection. Level D protection constitutes the following minimum protection</p> <ul style="list-style-type: none"> - Standard field attire (Sleeved shirt; long pants) - Steel toe Safety shoes - Safety glasses - Hardhat - Hearing protection - Nitrile gloves or leather gloves with surgical style inner gloves - <i>Reflective vest for traffic areas</i> - <i>Tyvek coveralls and disposable boot covers if surface contamination is present or if the potential exists for soiling work attire.</i> <p>Note: The Safe Work Permit(s) for this task (see Attachment V) will be issued at the beginning of each day to address the tasks planned for that day. As part of this task, additional PPE may be assigned to reflect site-specific conditions or special considerations associated with any identified task.</p>	<p>Personnel Decontamination - Will consist of a soap/water wash and rinse for reusable protective equipment (e.g., gloves). This function will take place at an area adjacent to the drilling operations bordering the Support Zone.</p> <p>This decontamination procedure for Level D protection will consist of</p> <ul style="list-style-type: none"> - Equipment drop - Soap/water wash and rinse of reusable outer gloves, as applicable - Outer coveralls, boot covers, and/or outer glove removal - Removal, segregation, and disposal of non-reusable PPE in bags/containers provided - Wash hands and face, leave contamination reduction zone.

TASKS/HAZARDS/CONTROL MEASURES SUMMARIZATION
INDIAN HEAD DIVISION NAVAL SURFACE WARFARE CENTER, INDIAN HEAD, MARYLAND

Task/Operation/ Location	Anticipated Hazards	Recommended Control Measures	Hazard Monitoring/Type and Action Levels	Personal Protective Equipment <i>(Italicized items are optional as conditions require)</i>	Decontamination Procedures
<p>Multi-media sampling (sub-surface soil, groundwater, surface water, sediment and IDW)</p> <p>Subsurface soil samples will be obtained from each of the excavation sites. These soil samples will be extracted from the bucket of the excavator. Under no circumstances will personnel be permitted to enter the excavation site.</p> <p>Site 32 - Tool Burial Site 33 - Scrap Metal Burial Site 34 - Tool Burial Site 37 - Causeway Site 51 - Building 101 Dry Well Site 52 - Building 102 Dry Well Site 42 - Olsen Road Landfill</p>	<p><i>Chemical hazards:</i></p> <p>1) Potential site contaminants vary by individual location. Based on historical information potential site contaminants may include the following contaminants (Based maximum historical detection):</p> <p>Site 32 - Tool Burial Site 33 - Scrap Metal Burial Site 34 - Tool Burial Metals and Explosives</p> <p>Site 37 - Causeway VOCs, SVOCs, metals, explosives and PCBs</p> <p>Site 51 - Building 101 Dry Well Site 52 - Building 102 Dry Well VOCs</p> <p>Site 42 - Olsen Road Landfill VOCs (Trichloroethylene, *Vinyl chloride, Xylene); SVOCs; Metals; and PCBs</p> <p>2) Transfer of contaminants into clean areas or onto persons</p> <p><i>Physical hazards:</i></p> <p>3) Lifting (muscle strains and pulls)</p> <p>4) Struck-by hazards, including pinches and compressions</p> <p>5) Slip, trips, and falls</p> <p>6) Noise</p> <p>7) Ambient temperature extremes (heat stress)</p>	<p>1) Use real-time monitoring instruments, action levels, and identified PPE to control exposures to potentially contaminated media. Particulates or particulate bound contaminants appear to present the greatest potential inhalation hazard to chemical contaminant exposure. To minimize this potential hazard the following control measures will be instituted</p> <ul style="list-style-type: none"> - Suppress dust by wetting the area. This will control particulates from becoming airborne due to mechanical generation. - Good personal hygiene practices (such as avoiding hand to mouth contact and washing hands and face when leaving the exclusion zone) - Use PPE and control exposures to potentially contaminated media. - Use monitoring instruments to evaluated airborne concentrations of potential site contaminants. <p>As decontamination solutions will be used to clean the sampling equipment, the FOL and/or the SSO will complete the following</p> <ul style="list-style-type: none"> - Collect MSDSs for all chemicals brought on-site and store in a central location. - Complete a chemical inventory provided in the Section 5.0 of the TINUS Health and Safety Guidance Manual. - Ensure all containers are appropriately labeled as per Section 5.0 of the Health and Safety Guidance Manual. <p>2) Only re-use equipment and supplies after proper decontamination.</p> <p>3) Employ machinery or multiple personnel for heavy lifts. Use proper lifting techniques.</p> <p>4) Keep any machine guarding in place. Avoid moving parts. Secure loose clothing, jewelry, or long hair that could become entangled. To avoid being struck:</p> <ul style="list-style-type: none"> - The bucket should be placed on the ground, 4 - 5' away from the test pit edge. When sampling is taking place, the operator is to place the bucket on the ground at least 4 - 5 feet from the excavation and - The sampler shall avoid the area between the bucket and an immovable object or the bucket and the test pit. <p>5) Preview work locations for unstable/uneven terrain.</p> <p>6) Excessive noise levels will be controlled through the use of hearing protection. Anticipated excessive noise level operations include the following:</p> <ul style="list-style-type: none"> - Heavy equipment operation including Track-hoes and multi-axle vehicles, etc. <p>7) Wear appropriate clothing for weather conditions. Provide acceptable shelter and liquids for field crews. Additional information regarding heat stress is provided in Section 4 of the Health and Safety Guidance Manual.</p>	<p>A Photoionization Detector (PID) with an 10.6 eV lamp source (or higher) will be used as a general screening instrument to detect volatile organic compounds and to evaluate airborne concentrations of potential site contaminants:</p> <p>Source areas (test pits, sample locations, spoil piles, etc.) will be monitored using a PID at regular intervals to be determined by the SSO. Positive sustained results at a source or downwind location(s) which may impact operations crew will require the following actions:</p> <p>Monitor the breathing zone of at-risk and downwind employees.</p> <p>For VOCs</p> <ul style="list-style-type: none"> - Any sustained reading (greater than 1 minute in duration) above background in the worker's breathing zone- retreat to an unaffected area. <p>For Visible Dusts (>2.0 mg/m³)</p> <ul style="list-style-type: none"> - Requires site activities to be suspended and site personnel to report to an unaffected area. <p>*For Vinyl Chloride</p> <ul style="list-style-type: none"> - Any sustained PID reading in the workers breathing zone - verify Vinyl Chloride using by using a Vinyl Chloride 0.5/b colorimetric tube - Any positive indications of Vinyl Chloride in the worker breathing zone will require site personnel to report to an unaffected area. <p>Work may only resume if airborne readings in worker breathing zone return to background levels or if the appropriate level of protection has been incorporated. If elevated readings in worker breathing zone persist, the PHSO and HSM will be contacted to determine necessary actions and levels of protection.</p> <p><i>(*) Only on Site 42</i></p>	<p>All sampling activities are anticipated to proceed in Level D protection, or as specified on the Safe Work Permit (Attachment V). Level D constitutes the following minimum protection:</p> <ul style="list-style-type: none"> - Standard field dress (long pants, sleeved shirts) - Steel toe safety shoes or boots - Chemical resistant over-boots - Tyvek - Nitrile gloves - Hard-hat, safety glasses, and earplugs or muffs. - <i>PVC or PE coated Tyvek will be incorporated if there is a potential for saturation of work attire.</i> <p>Note: The Safe Work Permit(s) for this task (see Attachment V) will be issued at the beginning of each day to address the tasks planned for that day. As part of this task, additional PPE may be assigned to reflect site-specific conditions or special considerations or conditions associated with any identified task or more conservative requirements identified.</p>	<p>Personnel decontamination:</p> <ul style="list-style-type: none"> - Equipment drop-off - Wash and rinse reusable outer protective garments - Remove and dispose of disposable PPE - Wash hands and face, leave contamination reduction zone. - Report as directed for Cold Stress Monitoring <p>Equipment decontamination:</p> <p>All sampling and reusable equipment will undergo a soap/water wash and rinse utilizing a suitable potable water source until visibly clean.</p> <p>Sampling equipment may also be high pressure soap/water wash and rinse or steam cleaned.</p> <p>All chemical decontamination will proceed in accordance with the other site documents such as Field Sampling Plan.</p>

**TABLE 5-1
TASKS/HAZARDS/CONTROL MEASURES SUMMARIZATION
INDIAN HEAD DIVISION NAVAL SURFACE WARFARE CENTER, INDIAN HEAD, MARYLAND**

Task/Operation/ Location	Anticipated Hazards	Recommended Control Measures	Hazard Monitoring/Type and Action Levels	Personal Protective Equipment <i>(Italicized items are optional as conditions require)</i>	Decontamination Procedures
<p>Decontamination of Sampling and Heavy Equipment</p> <p>All sites</p>	<p><i>Chemical hazards:</i></p> <p>1) Potential site contaminants vary by individual location within sites. Based on historical information potential site contaminants may include the following (Based maximum detection):</p> <p>Site 32 - Tool Burial Site 33 - Scrap Metal Burial Site 34 - Tool Burial Metals and Explosives</p> <p>Site 37 - Causeway VOCs, SVOCs, metals, explosives and PCBs</p> <p>Site 51 - Building 101 Dry Well Site 52 - Building 102 Dry Well VOCs</p> <p>Site 42 - Olsen Road Landfill VOCs (Trichloroethylene, Vinyl chloride, Xylene); SVOCs; Metals; and PCBs</p> <p>2) Decontamination fluids - Liquinox (detergent), or isopropanol</p> <p><i>Physical hazards:</i></p> <p>3) Lifting (strain/muscle pulls) 4) Noise in excess of 85 dBA 5) Flying projectiles 6) Vehicular and foot traffic 7) Ambient temperature extremes (heat stress) 8) Slips, trips, and falls</p> <p><i>Natural hazards:</i></p> <p>9) Inclement weather</p>	<p>1) and 2) Use protective equipment to minimize contact with site contaminants and hazardous decontamination fluids. Obtain manufacturer's MSDS for any decontamination fluids used onsite. Use appropriate PPE as identified on MSDS. All chemicals must be listed on the Chemical Inventory for the site, and site activities must be consistent with the Hazard Communication section of the Health and Safety Guidance Manual (Section 5). Review MSDS prior to chemical use. All chemicals unless otherwise directed must be used in well-ventilated areas, such as outdoors.</p> <p>3) Use multiple persons where necessary for lifting and handling drilling equipment (auger flights) for decontamination purposes.</p> <p>- Use drying racks or other suitable means to secure auger flights while drying. Auger flights should be secure against sliding or collapse.</p> <p>4) Wear hearing protection when operating pressure washer.</p> <p>5) Use eye and face protective equipment when operating the steam cleaner, due to flying projectiles. All other personnel must be restricted from the area. In addition to minimize hazards (flying projectiles, water lacerations and burns) associated with this operation, the following controls will be implemented</p> <p>- A 25° Fan Tip will be used on pressurized systems over 3,000 psi. This will reduce the possibility of lacerations.</p> <p>- Thermostat control to regulate the temperature levels.</p> <p>- Visual evaluations of hoses and fittings for structural defects</p> <p>Construct deflection screens as necessary to control overspray and to guard against dispersion of contaminants driven off by the spray.</p> <p>6) Traffic and equipment considerations are to include the following:</p> <p>- Establish safe zones of approach.</p> <p>- All self propelled equipment shall be equipped with movement warning systems.</p> <p>- All activities are to be conducted consistent with the Base requirements.</p> <p>7) Wear appropriate clothing for weather conditions. Provide acceptable shelter and liquids for field crews. Additional information regarding heat stress is provided in Section 4 of the Health and Safety Guidance Manual.</p> <p>8) Preview work locations for unstable/uneven terrain.</p> <p>- Use sand or other non-slip material over decontamination pads constructed of tarps or polyethylene sheeting</p> <p>- The pad should be constructed to allow all fluid to collect at one end, so decontamination personnel can stand away from standing water.</p> <p>- Keep all supply lines collected to avoid tripping hazards</p> <p>9) Suspend or terminate operations until directed otherwise by SSO.</p>	<p>Use visual observation to ensure all equipment has been properly cleaned of contamination and dried.</p>	<p>For Heavy Equipment This applies to high pressure soap/water, steam cleaning wash and rinse procedures.</p> <p>Level D Minimum requirements -</p> <ul style="list-style-type: none"> - Standard field attire (Long sleeve shirt; long pants) - Steel toe safety shoes/boots - Chemical resistant boot covers - Nitrile outer gloves - Safety glasses underneath a splash shield - Hearing protection (plugs or muffs) - <i>PVC Hainsuits or PE or PVC coated Tyvek</i> <p>For sampling equipment (trowels, samplers, bailers, etc.), the following PPE is required</p> <p>Note: Consult MSDS for PPE guidance. Otherwise, observe the following.</p> <p>Level D Minimum requirements -</p> <ul style="list-style-type: none"> - Standard field attire (Long sleeve shirt; long pants) - Safety shoes (Steel toe/shank) - Nitrile outer gloves - Safety glasses <p>In the event of overspray of chemical decontamination fluids employ PVC Rainsuits or PE or PVC coated Tyvek as necessary.</p> <p>Note: The Safe Work Permit(s) for this task (see Attachment V) will be issued at the beginning of each day to address the tasks planned for that day. As part of this task, additional PPE may be assigned to reflect site-specific conditions or special considerations or conditions associated with any identified task or more conservative requirements identified.</p>	<p>Personnel Decontamination will consist of a soap/water wash and rinse for reusable outer protective equipment (boots, gloves, PVC splash suits, as applicable). The decon function will take place at an area adjacent to the site activities. This procedure will consist of:</p> <ul style="list-style-type: none"> - Equipment drop - Soap/water wash and rinse of outer boots and gloves, as applicable - Soap/water wash and rinse of the outer splash suit, as applicable - Disposable PPE will be removed and bagged. <p>Equipment Decontamination - All heavy equipment decontamination will take place at a centralized decontamination pad utilizing steam or pressure washers. Heavy equipment will have the wheels and tires cleaned along with any loose debris removed, prior to transporting to the central decontamination area. All site vehicles will have restricted access to exclusion zones, and have their wheels/tires sprayed off as not to track mud onto the roadways servicing this installation. Roadways shall be cleared of any debris resulting from the onsite activity.</p> <p>Sampling Equipment Decontamination - Sampling equipment will be decontaminated as per the requirements in the Sampling and Analysis Plan and/or Work Plan.</p> <p>All equipment used in the exclusion zone will require a complete decontamination between locations and prior to removal from the site.</p> <p>The FOL or the SSO will be responsible for evaluating and authorizing equipment arriving on-site and leaving the site.</p> <p>Decontamination wash water will be containerized in 55 gallon drums, labeled an staged pending disposal. Labels will contain the following information:</p> <ul style="list-style-type: none"> - Waste Identification (SWMU #, Decon Water, etc) - Date filled - Emergency contact

TABLE 5-1

TASKS/HAZARDS/CONTROL MEASURES SUMMARIZATION
INDIAN HEAD DIVISION NAVAL SURFACE WARFARE CENTER, INDIAN HEAD, MARYLAND

Task/Operation/ Location	Anticipated Hazards	Recommended Control Measures	Hazard Monitoring/Type and Action Levels	Personal Protective Equipment <i>(Italicized items are optional as conditions require)</i>	Decontamination Procedures
<p>Surveying activities including geophysical and utility.</p> <p>All sites.</p>	<p><i>Chemical hazards:</i></p> <p>1) Exposure to potential site contaminants during surveying activities is unlikely given the nature of surveying work and the limited contact with potentially contaminated media (soils, etc.).</p> <p>Refer to Section 6.0 for a list of potential and representative site contaminants. See individual Safe Work Permits contained in Attachment V for specific contaminants of concern associated with particular sites and site activities.</p> <p><i>Physical hazards:</i></p> <p>2) Slip, trips, and falls</p> <p><i>Natural hazards:</i></p> <p>3) Inclement weather</p>	<p>1) To further reduce the potential for exposure, site personnel performing surveying activities will minimize contact with potentially contaminated media and will avoid areas where chemical hazards may exist.</p> <p>2) Preview work locations and site lines for uneven and unstable terrain. Clear necessary vegetation and establish temporary means for traversing hazardous terrain (e.g. rope ladders).</p> <p>3) All operations will be temporarily suspended during electrical storms.</p>	<p>No air monitoring is needed given that volatile contaminants are not likely to be present during surveying activities. The potential for exposure to site contaminants during this activity is considered minimal.</p>	<p>Surveying activities shall be performed in Level D protection</p> <p>Level D Protection consists of the following:</p> <ul style="list-style-type: none"> - Standard field dress including sleeved shirt and long pants - Steel-toe work boots or shoes - <i>Nitrile gloves to examine sediment</i> - <i>Safety glasses, hard hats (if working near machinery)</i> - <i>Tyvek coveralls may be worn to provide additional protection against poisonous plants and insects, particularly ticks.</i> - <i>Work gloves may be worn if desired.</i> - <i>Reflective vests (high traffic area)</i> - <i>Traffic control barriers as applicable</i> <p>Note: The Safe Work Permit(s) for this task (see Attachment V) will be issued at the beginning of each day to address the tasks planned for that day. As part of this task, additional PPE may be assigned to reflect site specific conditions or special considerations or conditions associated with any identified task.</p>	<p>Personnel Decontamination -If contact with soil from mudflats area, wash and rinse boots, mudders, and gloves to avoid tracking off site.</p>
<p>IDW management and moving IDW drums to storage areas for:</p> <p>Site 32 - Tool Burial Site 33 - Scrap Metal Burial Site 34 - Tool Burial Site 37 - Causeway</p>	<p><i>Chemical hazards:</i></p> <p>1) Exposure to site contaminants during this task is unlikely given that IDW drums are sealed and stored. Nonetheless, the primary types of contaminants that could be present include metals. Note that these contaminants may be bound to particulates (dusts, soils, etc.) and contact should be avoided whenever possible. None of the site contaminants, however, are anticipated to be present in significant concentrations to present an inhalation hazard. See Table 6-1 for more information on the chemicals of concern.</p> <p>2) Transfer of contamination into clean areas</p> <p><i>Physical hazards:</i></p> <p>3) Noise in excess of 85 dBA 4) Lifting (strain/muscle pulls) 5) Pinches and compressions 6) Slip, trips, and falls 7) Vehicular and foot traffic</p>	<p>1) All IDW containers staged should have the outside of the container clearly labeled. Also, identify PPE to control exposures to potentially contaminated media (e.g. air, water, soils).</p> <p>2) Decontaminate all equipment and supplies, if they become contaminated, between locations and prior to leaving the site.</p> <p>3) When working near heavy equipment, use hearing protection.</p> <p>4) Use machinery or multiple personnel for heavy lifts. Use proper lifting techniques.</p> <p>5) Keep hands and fingers free of drum pinch/compression points. Use tools or equipment where necessary to avoid contacting pinch points. Use drum dollies to transport drums where possible. Drums shall be staged as follows:</p> <ul style="list-style-type: none"> - four drums to a pallet - all drums retaining ring bolts and labels facing out - maintain a minimum of four feet between rows - number and log all generated IDW for each shift. Turn the log into Base POC prior to departing. <p>6) Preview work locations for unstable/uneven terrain.</p> <p>7) Traffic and equipment considerations are to include the following:</p> <ul style="list-style-type: none"> - Establish safe zones of approach (i.e. Boom + 5 feet). - All equipment shall be equipped with movement warning systems. - All activities are to be conducted consistent with the Base requirements. 	<p>It is not anticipated that potential contaminant concentrations at outdoor sample locations will present an inhalation hazard.</p> <p>Site contaminants may adhere to or be part of airborne dusts or particulates generated during site activities. Generation of dusts should be minimized to avoid inhalation of contaminated dusts or particulates. Evaluation of dust concentrations will be performed by observing work conditions for visible dust clouds. Potential exposure to contaminated dust will be controlled using water suppression, by avoiding dust plumes, or evacuating the operation area until dust subsides.</p>	<p>Level D protection will be utilized for the initiation of all IDW management activities.</p> <p>Level D - (Minimum Requirements)</p> <ul style="list-style-type: none"> - Standard field attire (long sleeve shirt; long pants) - Nitrile or cotton/leather work gloves (if opening containers and if there is a possibility of contacting wet media use surgical style inner gloves) - Steel toe safety shoes/boots - Safety glasses - <i>Hardhat (when overhead hazards exists, or identified as a operation requirement)</i> - <i>Tyvek coveralls and disposable boot covers if surface contamination is present or if the potential for soiling work attire exists.</i> - <i>Hearing protection for high noise areas, or as directed on an operation by operation scenario.</i> <p>Note: The Safe Work Permit(s) for this task (see Attachment V) will be issued at the beginning of each day to address the tasks planned for that day. As part of this task, additional PPE may be assigned to reflect site specific conditions or special considerations or conditions associated with any identified task or more conservative requirements identified.</p>	<p>Personnel Decontamination will consist of a soap/water wash and rinse for reusable outer protective equipment (boots, gloves, PVC splash suits, as applicable). The decon function will take place at an area adjacent to the site activities. This procedure will consist of:</p> <ul style="list-style-type: none"> - Equipment drop - Soap/water wash and rinse of outer boots and gloves, as applicable - Soap/water wash and rinse of the outer splash suit, as applicable - Disposable PPE will be removed and bagged.

6.0 HAZARD ASSESSMENT

This section provides information regarding potential chemical hazards and existing physical hazards associated with the Sites. Table 6-1 identifies the suspected contamination at each site.

6.1 CHEMICAL HAZARDS

Table 6-1
Site Suspected Contamination

Site	Suspected Contamination
Site 42 – Olsen Road Landfill	VOCs, SVOCs Metals and PCBs including the following: TCE, Vinyl Chloride, Xlyele, Lead and Manganese
Site 32 - Tool Burial	Metals
Site 33 - Scrap Metal Pit	Metals and explosives
Site 34 - Tool Burial	Metals
Site 36 - Closed Landfill	None suspected at this time
Site 37 - Causeway	VOCs, SVOCs, metals, explosives and PCBs
Site 51 - Building 101 Dry Well	VOCs
Site 52 - Building 102 Dry Well	VOCs

Information on the toxicological, chemical, and physical properties of the potential contaminants of concern is addressed in Table 6-2 of this HASP. It is anticipated that the greatest potential for exposure to site contaminants is during activities in which contact with potential contaminated media exists (soil boring, monitoring well installations, sampling activities, etc.).

**TABLE 6-2
CHEMICAL, PHYSICAL, AND TOXICOLOGICAL DATA
INDIAN HEAD DIVISION - NAVAL SURFACE WARFARE CENTER**

Substance	CAS No.	Air Monitoring/Sampling Information		Exposure Limits	Warning Property Rating	Physical Properties	Health Hazard Information
Lead	7439-92-1	Particulate form - Unable to be detected by either PID or FID.	Air sample using a mixed cellulose ester filter; or HNO ₃ or H ₂ O ₂ desorption; or Atomic absorption detection. Sampling and analytical protocol shall proceed in accordance with NIOSH Method #7082 or #7300.	OSHA: 0.05 mg/m ³ ACGIH: 0.15 mg/m ³ NIOSH: 0.10 mg/m ³ IDLH: 100 mg/m ³ as lead	The use of a air purifying, full-face respirator with high efficiency particulate air filter for up to 2.5 mg/m ³ . Recommended gloves: This is in the particulate form. Therefore any glove suitable to prevent skin contact (Nitrile has been the one most widely used for the other substances).	Boiling Pt: 3164°F; 1740°C Melting Pt: 621°F; 327°C Solubility: Insoluble Flash Pt: Not applicable (Airborne dust may burn or explode when exposed to heat, flame, or incompatible chemicals) LEL/LFL: Not applicable UEL/UFL: Not applicable Vapor Density: Not available Vapor Pressure: 0 mmHg Specific Gravity: 11.34 Incompatibilities: Strong oxidizers, peroxides, sodium acetylide, zirconium, and acids Appearance and Odor: Metal: A heavy ductile, soft gray solid.	Overexposure to this substance via ingestion or inhalation may result in metallic taste in the mouth, dry throat, thirst, Gastrointestinal disorders (burning stomach pain, nausea, vomiting, possible diarrhea sometimes bloody or black, accompanied by severe bouts of colic), CNS effects (muscular weakness, pain, cramps, headaches, insomnia, depression, partial paralysis possibly coma and death. Extended exposure may result in damage to the kidneys, gingival lead line, brain, and anemia.
Manganese	7439-96-5 as Mn	Particulate form - This substance is unable to be detected by PID/FID.	Air sample using particulate filter; acid desorption, ICP detection. Sampling and analytical protocol shall proceed in accordance with NIOSH Method #7300.	OSHA: Ceiling 5 mg/m ³ as a fume 1 mg/m ³ NIOSH: 1 mg/m ³ for dust and fume; 3 mg/m ³ as a STEL ACGIH: 5 mg/m ³ for dust; 1 mg/m ³ for fume IDLH: 500 mg/m ³	No identifiable warning properties to indicate presence and thereby detection. Recommended APR Cartridge: Suitable for dust and fume. Organic vapor acid gases with HEPA filter. Recommended gloves: This is in the particulate form. Therefore any glove suitable to prevent skin contact (Nitrile has been the one most widely used for the other substances).	Boiling Pt: 3452°F; 1900°C Melting Pt: 2300°F; 1260°C Solubility: Insoluble Flash Pt: Not available (Airborne dust may burn or explode when exposed to heat, flame, or incompatible chemicals. This substance is considered a combustible solid.) LEL/LFL: Not available UEL/UFL: Not available Vapor Density: Not available Vapor Pressure: 1 mmHg @ 2358°F; 1292°C Specific Gravity: 7.20 Incompatibilities: Strong oxidizers, halogens, and nitrates. Will react with water to produce hydrogen gas. Appearance and odor: Silvery solid or reddish-gray, odorless	Overexposure to this product may result in Central Nervous System and pulmonary effects by inhalation. Symptoms may include disturbances in gait and speech, sleepiness, mental confusion, stolid, masklike face, muscular twitching varying from tremors to coarse rhythmical movements of the extremities accompanied by cramps. Symptoms are described as postencephalitic Parkinsonism. Additionally dry throat, tightness in the chest, dyspnea, rales, flu-like symptoms low back pain, and vomiting.

**TABLE 6-1
CHEMICAL, PHYSICAL, AND TOXICOLOGICAL DATA
INDIAN HEAD DIVISION - NAVAL SURFACE WARFARE CENTER
SITES 32, 33, 34, 36, 37, 42, 51 AND 52**

Substance	CAS No.	Air Monitoring/Sampling Information		Exposure Limits	Warning Property Rating	Physical Properties	Health Hazard Information
1,1-Dichloroethane	75-34-3	PID: I.P. 11.06 eV, relative response ratio unknown. FID: 80% relative response ratio with FID.	Air sample using charcoal tube; carbon disulfide desorption; GC/FID detection. Sampling and analytical protocol shall proceed in accordance with OSHA Method #07-B or NIOSH Method #1003	OSHA; NIOSH; ACGIH: 100 ppm IDLH: 4000 ppm	Questionable warning properties - Odor threshold 49 - 1359 ppm. APRs may be employed for escape only. Exceedances over the exposure limits are recommended to use airline or airline/APR combination type respirator. Recommended glove: Butyl; Polyvinyl alcohol; Viton	Boiling Pt: 135°F; 57°C Melting Pt: -143°F; -97°C Solubility: 0.6% Flash Pt: 2°F; -17°C LEL/LFL: 5.6% UEL/UFL: 11.4% Vapor Density: 3.42 Vapor Pressure: 182 mmHg Specific Gravity: 1.18 Incompatibilities: Strong oxidizers, strong caustics Appearance and odor: Colorless, oily liquid with a chloroform-like odor.	Overexposure may result in CNS depression, skin and eye irritation, and damage to the liver, kidneys, and lungs.
Trichloroethylene	79-01-6	PID: I.P. 9.45 eV, High response with PID and 10.2 eV lamp. FID: 70% Response with FID.	Air sample using charcoal tube; carbon disulfide desorption; Sampling and analytical protocol shall proceed in accordance with OSHA Method #07, or NIOSH Method #1022 or #1003.	OSHA: 50 ppm; 200 ppm (Ceiling) ACGIH: 50 ppm; 100 ppm STEL NIOSH: 25 ppm IDLH: 1000 ppm	Inadequate - Odor threshold 82 ppm. APRs with organic vapor/acid gas cartridges may be used for escape purposes. Exceedances over the exposure limits require the use of positive pressure-demand supplied air respirator. Recommended gloves: PV Alcohol unsupported >16.00 hrs; Silver shield >6.00 hrs; Teflon >24.00 hrs; or Viton >24.00 hrs; Nitrile (Useable time limit 0.5 hr, complete submersion for the nitrile selection)	Boiling Pt: 188°F; 86.7°C Melting Pt: -99°F; -73°C Solubility: 0.1% @ 77°F; 25°C Flash Pt: 90°F; 32°C LEL/LFL: 8% @ 77°F; 25°C UEL/UFL: 10.5 @ 77°F; 25°C Vapor Density: 4.53 Vapor Pressure: 100 mmHg @ 90°F; 32°C Specific Gravity: 1.46 Incompatibilities: Strong caustics and alkalis, chemically active metals (barium, lithium, sodium, magnesium, titanium, and beryllium) Appearance and Odor: Colorless liquid with a chloroform type odor. Combustible liquid, however, burns with difficulty.	Central nervous system effects including euphoria, analgesia, anesthesia, paresthesia, headaches, tremors, vertigo, and somnolence. Damage to the liver, kidneys, heart, lungs, and skin have also been reported. Contact may result in irritation to the eyes, skin, and mucous membranes. Ingestion may result in GI disturbances including nausea, and vomiting NIOSH lists this substance a potential human carcinogen.

**TABLE 6-1
CHEMICAL, PHYSICAL, AND TOXICOLOGICAL DATA
INDIAN HEAD DIVISION - NAVAL SURFACE WARFARE CENTER
SITES 32, 33, 34, 36, 37, 42, 51 AND 52**

Substance	CAS No.	Air Monitoring/Sampling Information	Exposure Limits	Warning Property Rating	Physical Properties	Health Hazard Information	
Vinyl chloride	75-01-4	PID: I.P. 9.99 eV, High response with PID and 10.2 eV lamp. FID: 40% response with FID.	Air sample using charcoal or Anasorb CMS sorbent tube; carbon disulfide desorption; gas chromatography-flame ionization detection; Sampling and analytical protocol shall proceed in accordance with NIOSH Method #1007, or OSHA Method #75.	OSHA: 1.0 ppm; 5.0 ppm (Ceiling) ACGIH: 5 ppm NIOSH: Lowest Feasible Concentration	Inadequate - Odor threshold 10-20 ppm. Gas Mask with a vinyl chloride Type N canister may be employed for concentrations up to 25 ppm. Canisters employed must have a minimum service life of 4-hrs. Exceedances over 25 ppm, must use a positive pressure demand, open-circuit, self-contained breathing apparatus, pressure demand type, with full facepiece. Refer to 29 CFR 1910.1017(g) for specific requirements based on atmospheric concentrations of vinyl chloride. Recommended gloves: Silver shield >6.00 hrs; Nitrile 5.70 hrs; or Viton 4.4 hrs	Boiling Pt: 7°F; -13.9°C Melting Pt: -256°F; -160°C Solubility: 0.1% @ 77°F; 25°C Flash Pt: 18°F; -8°C LEL/LFL: 3.6% UEL/UFL: 33% Vapor Density: 2.21 Vapor Pressure: 3.3 atm Specific Gravity: N.A. Incompatibilities: Oxidizers, copper, aluminum, peroxides, iron, steel, Appearance and Odor: Colorless gas or liquid (below 7°F) with a pleasant odor at high concentrations.	A severe skin, eye, and mucous membrane irritant(Liquid: frostbite). Narcotic effect causing weakness, abdominal pains, GI bleeding, and pallor skin or cyanosis. Chronic exposure has been linked to the formation of malignant tumors originating from blood lymphatic vessels in the liver (associated enlargement of the liver), and kidneys (angiosarcoma and nephroblastoma). Listed as a carcinogen by NTP, IARC and ACGIH.
Xylene All isomers o-,m-, p-	1330-20-7	PID: I.P. 8.56 eV, High response with PID and 10.2 eV lamp. FID: 110% response with FID.	Air sample using charcoal tube; carbon disulfide desorption; GC/FID detection. Sampling and analytical protocol shall proceed in accordance with OSHA 07, or NIOSH Method 1500.	ACGIH, & NIOSH: 100 ppm, 150 ppm STEL OSHA: 100 ppm IDLH: 900 ppm	Adequate - Odor thresholds for the following isomers: 0.6 m-; 5.4 p-; 20 o- ppm. Can use air-purifying respirator with organic vapor cartridge up to 9 00 ppm concentrations. Recommended gloves: PV Alcohol >12.67 hrs; Viton >8.00 hrs; CPE >1.00 hr; Butyl 0.87 hrs; Nitrile is acceptable for limited operations and contact (>0.20 hrs)	Boiling Pt: 269-281°F; 132-138°C Melting Pt: -13o/-54m/56p°F; -25o/-48m/13p °C Solubility: 0.02 % Flash Pt: 81-90°F;27-32°C LEL/LFL: 0.9% UEL/UFL: 7.0% Vapor Density: 3.66 Vapor Pressure: 7-9 mmHg @ 70°F; 21°C Specific Gravity: 0.86-0.88 Incompatibilities: Strong oxidizers and strong acids Appearance and odor: Colorless liquid with an aromatic odor.	Effects may of overexposure include irritation at all points of contact, CNS changes (i.e. dizziness, excitement, drowsiness, incoherent, staggering gait), difficulty in breathing, pulmonary edema, and possibly respiratory failure. Chronic effects may include dermatitis and cornea vacuolization.

**TABLE 6-1
CHEMICAL, PHYSICAL, AND TOXICOLOGICAL DATA
INDIAN HEAD DIVISION - NAVAL SURFACE WARFARE CENTER
SITES 32, 33, 34, 36, 37, 42, 51 AND 52**

Substance	CAS No.	Air Monitoring/Sampling Information		Exposure Limits	Warning Property Rating	Physical Properties	Health Hazard Information
Aroclor-1260 (Polychlorinated Biphenyl, PCB) It should be noted that this substance is representative of the more common isomers Aroclor - 1242, 1254, which may be encountered.	11096-82-5 53469-21-9 (42%) 11097-69-1 (54%)	Substance is not volatile (VP=0.00006 mmHg), I.P. is unknown however is anticipated to be elevated, therefore, PID is not anticipated to detect substance. Substance is non combustible and as a result will not be detected by FID.	Air sample using a particulate filter, Florisil sorbent tube with glass fiber filter; hexane desorption; gas chromatography-electron capture detector. Sampling and analytical protocol shall proceed in accordance with NIOSH Method #5503 (PCBs).	OSHA; ACGIH: 0.5 mg/m ³ (skin) NIOSH: 0.001 mg/m ³ IDLH: 5 mg/m ³	Inadequate - However due to the low volatility it is assumed unless agitated this substance does not present a volatile vapor or gas respiratory threat. For dusty conditions where this material may cling to particulates, use a HEPA filter. APRs are approved for escape only when concentrations exceed the exposure limits. Concentrations greater than the exposure limits require PAPR or supplied air respirators. Recommended glove: Butyl rubber >24 hrs; Neoprene rubber >24.00 hrs; Silver shield or Viton (for pure product).	Boiling Pt: distillation range 689- 734°F; 365-390°C Melting Pt: -2 to 50°F; -19 to 10°C Solubility: Insoluble Flash Pt: Not applicable LEL/LFL: Not applicable UEL/UFL: Not applicable Nonflammable liquid, however, exposure to fire results in black soot containing PCBs, dibenzofurans, & chlorinated dibenzo-p-dioxins Vapor Density: Not available Vapor Pressure: 0.00006 - 0.001 mmHg Specific Gravity: 1.566 @ 60°F; 15.5°C Incompatibilities: Strong oxidizers Appearance and Odor: Colorless to pale yellow, viscous liquid or solid (Aroclor 54 below 50°F) with a mild, hydrocarbon odor	This substance is irritating to the eyes and skin. Chronic effects of overexposure may include potential to cause liver damage, chloracne, and reproductive effects. Recognized as possessing carcinogenic properties by NIOSH, and NTP.
Nitrocellulose (NC) Synonyms: Pyroxylin Plastics Cellulose Nitrate Cellulose Tetranitrate	9004-70-0	Particulate form - unable to be detected by the PID or FID.	None found	None established	Extremely flammable Burns rapidly with extreme heat Deteriorates rapidly in the presence of moisture. Recommended gloves: Impermeable work gloves (Note: Nitrile has been selected as the predominant glove of choice for the other tasks.)	Boiling Pt: Not available Melting Pt: Not available Detonation Pt: 446°F; 230°C Solubility: Insoluble Specific Gravity: Not available TDP: Toxic fumes of Nox Vapor Density: Negligible Vapor Pressure: Negligible Flash Pt: 55°F; 13°C LEL: Not available UEL: Not available Incompatibles: Not available Appearance and odor: White fibers	Excessive airborne concentrations may react similar to that of nuisance dust. This would include difficulty in breathing, coughing, sneezing, tightness in the chest, increased sputum production. No chronic effects known.

**TABLE 6-1
CHEMICAL, PHYSICAL, AND TOXICOLOGICAL DATA
INDIAN HEAD DIVISION - NAVAL SURFACE WARFARE CENTER
SITES 32, 33, 34, 36, 37, 42, 51 AND 52**

Substance	CAS No.	Air Monitoring/Sampling Information		Exposure Limits	Warning Property Rating	Physical Properties	Health Hazard Information
Nitroglycerine (NG) Synonyms: Blasting gelatin; Glyceryl Trinitrate, solution up to 10% in alcohol Nitroglycerin liquid; Desensitized; Nitroglycerin, Liquid Not desensitized	55-63-0	No information found	Tenax GC tubes; ethanol desorption; GC/ECD detection. Sampling and analytical protocol in accordance with NIOSH Method #2507.	OSHA: 0.1 mg/m ³ (skin) ACGIH: 0.46 mg/m ³ (skin) NIOSH: 0.1 mg/m ³ (ceiling); (skin) IDLH: 75 mg/m ³	Air purifying respirators are recommended for escape purposes only. Recommended Gloves: Gloves suitable to prevent skin contact. Natural rubber or Nitrile rubber recommended for incidental contact.	Boiling Pt: 498.8°F; 256°C (decomposes 122°F-140°F; 50- 60°C) Melting Pt: 44.8°F; 7°C Freezing Pt: 56°F; 13°C Detonation Pt: 424.4°F; 218°C Solubility: 0.1% Specific Gravity: 1.60 Vapor Density: 7.84 Vapor Pressure: 0.0003 mm Flash Pt: Explodes at 500°F; 256°C LEL: Unknown UEL: Unknown Incompatibles: Heat, ozone, shock, UV radiation, and acids Appearance: Colorless to pale yellow viscous liquid or solid with a sweet taste	Routes of exposure: Inhalation, ingestion, absorption, and contact. The following symptoms may be experienced resulting from exposure to nitroglycerine or its intermediates. The severity of the effect will depend on the concentrations, duration, and frequency of exposure. Severe headaches, nausea, vomiting, abdominal cramps, confusion, delirium, altered heart rhythm, dyspnea (potentially respiratory paralysis), methemoglobinemia, and cyanosis may result from overexposure to this material. This material will also cause skin irritation and possibly a rash. Chronic Toxicity: Severe headaches, hallucinations, and skin rashes. NOTE: Alcohol may aggravate and intensify the symptoms.
Nitroguanidine (NQ) Synonyms: Nitroguanidine, containing less than 20% water; Nitroguanidine dry; Pictrite	556-88-7	No information found	None established	None established	This material will be in the form of a particulate under ambient temperatures. As there is no suitable way to determine its presence through warning properties or monitoring instruments, a general approach will be to control all particulate emissions and hence control potential exposures to this compound. Not very sensitive to shock or impact. Recommended Gloves: Gloves suitable to prevent skin contact. Natural rubber or Nitrile rubber recommended for incidental contact.	Boiling Pt: Decomposes at 437°F; 225°C Melting Pt: 450°F; 232°C Solubility: Yes, in hot water Specific Gravity: Not available Vapor Density: 3.6 Vapor Pressure: Negligible Flash Pt: Not available LEL: Not available UEL: Not available Incompatibles: oxidizers Appearance and Odor: White, fiber-like crystals	Routes of exposure: inhalation, absorption, and ingestion. The following symptoms may be experienced resulting from exposure to Nitroguanidine or its intermediates. The severity of the effect will depend on the concentrations, duration, and frequency of exposure. Acute Toxicity: CNS depression Chronic Toxicity: Chronic exposure may cause poison by intraperitoneal route. mutagenic effects, anemia, moderate cyanosis, dizziness, headache, and insomnia. *-based on general amine exposure

6.2 PHYSICAL HAZARDS

In addition to the chemical hazards discussed above, the following physical hazards may be present during the performance of site activities.

- Slips, trips, and falls.
- Strain from heavy lifting.
- Natural hazards

These physical hazards and their applicability to each site task are discussed in detail in Table 5-1. Additionally, each of these physical hazards is discussed in detail in the TtNUS Health and Safety Manual.

6.2.1 Slip, Trip and Fall Hazards

Various potential slip, trip, and fall hazards may be encountered during the performance of planned site activities. These hazards are associated with working out doors where uneven or wet terrain may be encountered, or near the edge of bodies of water, as well as on boat decks and docks. To minimize the potential for worker injury from these hazards, the following requirements must be observed:

- Maintain proper housekeeping in all work areas.
- Preview and inspect work areas to identify and eliminate slip, trip, or fall hazards. In outdoor locations, pay particular attention to sink holes or other depressions that may be encountered.
- Any work that is to be done on structures that are more than 6-feet above floor or ground level will require fall protection training and the use of 100% fall protection equipment.
- Cover, guard, barricade, and/or place warning postings over/at holes or openings that personnel may fall or step into.
- For traversing steep, slippery, or sloped terrain establish rope ladders to control ascent and descent to sampling areas or use alternative pathways.

6.2.2 Strains/Muscle Pulls

To prevent injuries due to improper lifting and carrying methods observe the following:

- Estimate the weight and configuration of the load (i.e., is it bulky or hard to safely grasp/lift/control). If it appears to be too heavy or bulky to safely handle alone, either use a mechanical lifting device or obtain help from another employee to lift the load. The use of mechanical lifting devices is always preferable over manual lifting.
- Bend at the knees (not at the waist) when attempting a lift.
- Get a firm hold is obtained, and keep the load as close to the body as possible.
- Lift the load using your legs, and not the back.
- Avoid turning or twisting while holding a load.
- Preview the path of travel to identify and eliminate tripping hazards.
- Do not carry loads that obstruct the line of sight.
- When setting a load down use the leg muscles and do not bend at the waist.
- *Divide heavier loads into smaller amounts.*

6.3 NATURAL HAZARDS

Insect/animal bites and stings, poisonous plants, and inclement weather are natural hazards that may be present given the location of activities to be conducted. In general, avoidance of areas of known infestation or growth will be the preferred exposure control for insects/animals and poisonous plants.

6.3.1 Inclement Weather

Project tasks under this Scope of Work will be performed outdoors and near water. As a result, inclement weather may be encountered. In the event that adverse weather conditions arise (electrical storms, hurricanes, etc.), the FOL and/or the SSO will be responsible for temporarily suspending or terminating activities until hazardous conditions no longer exist.

7.0 AIR MONITORING

Direct reading instruments will be used at the site to detect and evaluate the presence of site contaminants and other potentially hazardous conditions. As a result, specific air monitoring measures and requirements are established in Table 5-1 pertaining to the hazards and tasks of an identified operation. Additionally Section 1.0, the Health and Safety Guidance Manual contains detailed information regarding direct reading instrumentation, as well as general calibration procedures of various instruments.

7.1 INSTRUMENTS AND USE

Instruments will be used primarily to monitor source points and worker breathing zone areas while observing instrument action levels. Action levels are discussed in Table 5-1 as they may apply to a specific task or location.

7.1.1 Photoionization Detector and Flame Ionization Detector

To accurately monitor for any substances that may present an exposure potential to site personnel, a Photoionization Detector (PID) using a lamp energy of 10.6 electron volts (eV) or higher will be used. This instrument will be used to monitor potential source areas and to screen the breathing zones of employees during site activities. The PID has been selected because it is capable of detecting the organic vapors of concern (Note: A Flame Ionization Detector [FID] may be used as an alternative to the PID). This instrument will only detect the presence of ionizing contaminants. This instrument will not detect the explosive compounds and metals.

Before starting any field activities, the background levels of the site must be determined and noted. Daily background readings will be taken away from any areas of potential contamination. These readings, any influencing conditions (weather, temperature, humidity, etc.), and site location must be documented in the field operations logbook or other site documentation (e.g., sample log sheet).

7.1.2 Colorimetric Tubes

The Vinyl Chloride colorimetric tube will be used whenever elevated PID readings are observed. Any positive indications that Vinyl Chloride is present in the Worker Breathing Zone will require evacuation until the levels return to normal.

7.1.3 Hazard Monitoring Frequency

Table 5-1 presents the frequencies in which hazard monitoring will be performed as well as the action levels that will initiate the use of elevated levels of protection. The SSO may decide to increase these frequencies based on instrument responses and site observations. The frequency in which monitoring is performed will not be reduced without the prior consent of the PHSO or HSM.

7.2 INSTRUMENT MAINTENANCE AND CALIBRATION

Hazard monitoring instruments will be maintained and pre-field calibrated by the TtNUS Equipment Manager. Operational checks and field calibration will be performed on all instruments each day before use. Field calibration will be performed on instruments according to manufacturer's recommendations (for example, the PID must be field calibrated daily and an additional field calibration must be performed at the end of each day to determine any significant instrument drift). These operational checks and calibration efforts will be performed in a manner that complies with the employees health and safety training, the manufacturer's recommendations, and with the applicable manufacturer SOP (copies of which can be found in the Health and Safety Guidance Manual that will be maintained onsite for reference). All calibration efforts must be documented. Figure 7-1 is provided for documenting these calibration efforts. This information may instead be recorded in a field operations logbook, provided that all of the information specified in Figure 7-1 is recorded. This required information includes the following:

- Date calibration was performed
- Individual calibrating the instrument
- Instrument name, model, and serial number
- Any relevant instrument settings and resultant readings (before and after) calibration
- Identification of the calibration standard (lot no., source concentration, supplier)
- Any relevant comments or remarks

8.0 TRAINING/MEDICAL SURVEILLANCE REQUIREMENTS

8.1 INTRODUCTORY/REFRESHER/SUPERVISORY TRAINING

This section is included to specify health and safety training and medical surveillance requirements for both TtNUS and subcontractor personnel participating in site activities.

8.1.1 Requirements for TtNUS Personnel

All TtNUS personnel must complete 40 hours of introductory hazardous waste site training prior to performing work at the IND-NSWC facility. Additionally, TtNUS personnel who have had introductory training more than 12 months prior to site work must have completed 8 hours of refresher training in the past 12 months before being cleared for site work. In addition, 8-hour supervisory training in accordance with 29 CFR 1910.120 (e)(4) will be required for site supervisory personnel.

Documentation of TtNUS introductory, supervisory, and refresher training as well as site-specific training will be maintained at the project. Copies of certificates or other official documentation will be used to fulfill this requirement.

8.1.2 Requirements for Subcontractors

All TtNUS subcontractor personnel must have completed introductory hazardous waste site training or equivalent work experience as defined in OSHA Standard 29 CFR 1910.120 (e). Additionally, personnel who have had the introductory training more than 12 months ago, are required to have 8 hours of refresher training meeting the requirements of 29 CFR 1910.120 (e)(8) prior to performing field work at the IND-NSWC facility if required. TtNUS subcontractors must certify that each employee has had such training by sending TtNUS a letter, on company letterhead, containing the information in the example letter provided as in Figure 8-1 and by providing copies of certificates for all subcontractor personnel participating in site activities.

FIGURE 8-1
OSHA TRAINING CERTIFICATION

The following statements must be typed on company letterhead and signed by an officer of the company and accompanied by copies of personnel training certificates:

LOGO
XYZ CORPORATION
555 E. 5th Street
Nowheresville, Kansas 55555

Month, day, year

Mr. George J. Latulippe, P.E.
Tetra Tech NUS, Inc.
Project Manager
661 Andersen Drive
Pittsburgh, Pennsylvania 15220

Subject: HAZWOPER Training

Dear Mr. Latulippe:

As an officer of XYZ Corporation, I hereby state that I am aware of the potential hazardous nature of the subject project. I also understand that it is our responsibility to comply with all applicable occupational safety and health regulations, including those stipulated in Title 29 of the Code of Federal Regulations (CFR), Parts 1900 through 1910 and Part 1926.

I also understand that Title 29 CFR 1910.120, entitled "Hazardous Waste Operations and Emergency Response," requires appropriate level of training for certain employees engaged in hazardous waste operations. In this regard, I hereby state that the following employees have had 40 hours of introductory hazardous waste site training or equivalent work experience as requested by 29 CFR 1910.120(e) and have had 8 hours of refresher training as applicable and as required by 29 CFR 1910.120(e)(8) and that site supervisory personnel have had training in accordance with 29 CFR 1910.120(e)(4).

LIST FULL NAMES OF EMPLOYEES AND THEIR SOCIAL SECURITY NUMBERS HERE.

Should you have any questions, please contact me at (555) 555-5555

Sincerely,

(Name and Title of Company Officer)

Enclosed: Training Certificates

8.2 SITE-SPECIFIC TRAINING

TtNUS will provide site-specific training to all TtNUS employees and subcontractor personnel who will perform work on this project. Site-specific training will also be provided to all personnel (U.S. Department of Defense, EPA, etc.) who may enter the site to perform functions that may or may not be directly related to site operations. Site-Specific training will include:

- Names of designated personnel and alternates responsible for site safety and health
- Safety, health, and other hazards present on site
- Use of personal protective equipment
- Safe use of engineering controls and equipment
- Medical surveillance requirements
- Signs and symptoms of overexposure
- Contents of the Health and Safety Plan
- Emergency response procedures (evacuation and assembly points)
- Incipient response procedures
- Review of the contents of relevant Material Safety Data Sheets
- Review of the use of Safe Work Permits

Site-specific documentation will be established through the use of Figure 8-2. All site personnel and visitors must sign this document upon receiving site-specific training.

8.3 MEDICAL SURVEILLANCE

8.3.1 Medical Surveillance Requirements for TtNUS Personnel

All TtNUS personnel participating in project field activities will have had a physical examination meeting the requirements of TtNUS's medical surveillance program and will be medically qualified to perform hazardous waste site work using respiratory protection.

Documentation for medical clearances will be maintained in the TtNUS Pittsburgh office and made available, as necessary.

8.3.2 Medical Surveillance Requirements for Subcontractors

Subcontractors are required to obtain a certificate of their ability to perform hazardous waste site work and to wear respiratory protection. The "Subcontractor Medical Approval Form" provided in Figure 8-3 shall be used to satisfy this requirement, providing it is properly completed and signed by a licensed physician.

Subcontractors who have a company medical surveillance program meeting the requirements of paragraph (f) of OSHA 29 CFR 1910.120 can substitute "Subcontractor Medical Approval Form" (See Figure 8-3) with a letter, on company letterhead, containing all of the information in the example letter presented in Figure 8-4 of this HASP.

8.3.3 Requirements for All Field Personnel

Each field team member (including subcontractors) and visitors entering the Exclusion Zone(s) shall be required to complete and submit a copy of Medical Data Sheet found in the TtNUS Health and Safety Guidance Manual. This shall be provided to the SSO, prior to participating in site activities. The purpose of this document is to provide site personnel and emergency responders with additional information that may be necessary in order to administer medical attention.

8.4 SUBCONTRACTOR EXCEPTIONS

Subcontractors who will not enter the Exclusion Zone during intrusive operations, and whose activities involve no potential for exposure to site contaminants, will not be required to meet the requirements for training/medical surveillance other than those stated for site-specific training (See Section 8.2).

FIGURE 8-3
SUBCONTRACTOR MEDICAL APPROVAL FORM

For employees of _____
Company Name

Participant Name: _____ Date of Exam: _____

Part A

The above-named individual has:

1. Undergone a physical examination in accordance with OSHA Standard 29 CFR 1910.120, paragraph (f), and was found to be medically -

- qualified to perform work at the IHDIV-NSWC work site
 not qualified to perform work at the IHDIV-NSWC work site

and,

2. Undergone a physical examination in accordance with OSHA 29 CFR 1910.134(b)(10) and was found to be medically -

- qualified to wear respiratory protection
 not qualified to wear respiratory protection

3. My evaluation has been based on the following information, as provided to me by the employer.

- A copy of OSHA Standard 29 CFR 1910.120 and appendices.
 A description of the employee's duties as they relate to the employee's exposures.
 A list of known/suspected contaminants and their concentrations (if known).
 A description of any personal protective equipment used or to be used.
 Information from previous medical examinations of the employee that is not readily available to the examining physician.

Part B

I, _____, have examined _____
Physician's Name (print) Participant's Name (print)

and have determined the following information:

**FIGURE 8-3
SUBCONTRACTOR MEDICAL APPROVAL FORM
PAGE TWO**

1. Results of the medical examination and tests (excluding finding or diagnoses unrelated to occupational exposure):

2. Any detected medical conditions which would place the employee at increased risk of material impairment of the employee's health:

3. Recommended limitations upon the employee's assigned work:

I have informed this participant of the results of this medical examination and any medical conditions which require further examination or treatment.

Based on the information provided to me, and in view of the activities and hazard potentials involved at the IHDIV-NSWC work site, this participant

- may
 may not

perform his/her assigned task.

Physician's Signature _____

Address _____

Phone Number _____

NOTE: Copies of test results are maintained and available at:

Address

FIGURE 8-4
MEDICAL SURVEILLANCE LETTER

The following statements must be typed on company letterhead and signed by an officer of the company:

LOGO
XYZ CORPORATION
555 E. 5th Street
Nowheresville, Kansas 55555

Month, day, year

Mr. George Latulippe, P.E.
Project Manager
Tetra Tech NUS, Inc.
Foster Plaza 7, 661 Andersen Drive
Pittsburgh, Pennsylvania 15220

Subject: Medical Surveillance for Indian Head Division - Naval Surface Warfare Center

Dear Mr. Latulippe,

As an officer of XYZ Corporation, I hereby state that the persons listed below participate in a medical surveillance program meeting the requirements contained in paragraph (f) of Title 29 of the Code of Federal Regulations (CFR), Part 1910.120, entitled "Hazardous Waste Operations and Emergency Response: Final Rule." I further state that the persons listed below have had physical examinations under this program within the past 12 months and that they have been cleared, by a licensed physician, to perform hazardous waste site work and to wear positive- and negative- pressure respiratory protection. I also state that, to my knowledge, no person listed below has any medical restriction that would preclude him/her from working at the IHDIV-NSWC work site.

LIST FULL NAMES OF EMPLOYEES AND THEIR SOCIAL SECURITY NUMBERS HERE.

Should you have any questions, please contact me at (555) 555-5555.

Sincerely,

(Name and Title of Company Officer)

9.0 SITE CONTROL

This section outlines the means by which TtNUS will delineate work zones and use these work zones in conjunction with decontamination procedures to prevent the spread of contaminants into previously unaffected areas of the site. It is anticipated that a three-zone approach will be used during work at this site, including an Exclusion Zone, a Contamination Reduction Zone, and a Support Zone. It is also anticipated that this control measure will be used to control access to site work areas. Use of such controls will restrict the general public, minimize potentials for the spread of contaminants and to protect individuals who are not cleared to enter the work areas.

9.1 EXCLUSION ZONE

The Exclusion Zone will be considered those areas of the site of known or suspected contamination. It is not anticipated that significant amounts of surface contamination are in the proposed work areas of this site. It is anticipated that this will remain so until/unless contaminants are brought to the surface by intrusive activities such as drilling and excavations for test pits and in the tool burial areas. Furthermore, once such activities have been completed and surface contamination has been removed, the potential for exposure is again diminished and the area can then be reclassified as part of the Contamination Reduction Zone. Therefore, the Exclusion Zones for this project will be limited to those areas if the site where active work is being performed plus an established safety zone depending on the task for surface soils and wipe samples maintain a five foot radius surrounding the sample collection point.

9.2 CONTAMINATION REDUCTION ZONE

The Contamination Reduction Zone (CRZ) will be a buffer area between the Exclusion Zone and any area of the site where contamination is not suspected. This area will also serve as a focal point in supporting Exclusion Zone activities. This area will be delineated using barrier tape, cones, and postings to inform and direct facility personnel. Decontamination will be conducted at a central location. All equipment potentially contaminated will be bagged and taken to that location for decontamination.

9.3 SUPPORT ZONE

The Support Zone for this project will include a staging area where site vehicles will be parked, equipment will be unloaded, and where food and drink containers will be maintained. In all cases, the Support Zones will be established at areas of the site where exposure to site contaminants would not be expected during normal working conditions or foreseeable emergencies.

9.4 SAFE WORK PERMITS

All Exclusion Zone work conducted in support of this project will be performed using Safe Work Permits to guide and direct field crews on a task by task basis. An example of the Safe Work Permit to be used is illustrated in Figure 9-1. Partially completed Permits for the work to be performed are included in Attachment V. The daily meetings conducted at the site will further support these work permits. This effort will ensure all site-specific considerations and changing conditions are incorporated into the planning effort. All permits will require the signature of the FOL and SSO. Use of these permits will provide the communication line for reviewing protective measures and hazards associated with each operation. This HASP will be used as the primary reference for selecting levels of protection and control measures. The work permit will take precedence over the HASP when more conservative measures are required based on specific site conditions.

**FIGURE 9-1
SAFE WORK PERMIT**

Permit No. _____ Date: _____ Time: From _____ to _____

SECTION I: General Job Scope (To be filled in by person performing work)

- I. Work limited to the following (description, area, equipment used): _____

- II. Names: _____

- III. Onsite Inspection conducted Yes No Initials of Inspector _____
 TtNUS

SECTION II: General Safety Requirements (To be filled in by permit issuer)

- IV. Protective equipment required
 Level D Level B
 Level C Level A
 Detailed on Reverse
- Respiratory equipment required
 Full face APR Escape Pack
 Half face APR SCBA
 SAR Bottle Trailer
 Skid Rig None
- Modifications/Exceptions: _____

V. Chemicals of Concern	Action Level(s)	Response Measures
_____	_____	_____
_____	_____	_____

- VI. Additional Safety Equipment/Procedures
- | | |
|--|---|
| Hardhat <input type="checkbox"/> Yes <input type="checkbox"/> No | Hearing Protection (Plugs/Muffs) <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Safety Glasses <input type="checkbox"/> Yes <input type="checkbox"/> No | Safety belt/harness <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Chemical/splash goggles <input type="checkbox"/> Yes <input type="checkbox"/> No | Radio <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Splash Shield <input type="checkbox"/> Yes <input type="checkbox"/> No | Barricades <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Splash suits/coveralls <input type="checkbox"/> Yes <input type="checkbox"/> No | Gloves (Type) <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Steel toe/shank Workboots... <input type="checkbox"/> Yes <input type="checkbox"/> No | Work/rest regimen <input type="checkbox"/> Yes <input type="checkbox"/> No |
- Modifications/Exceptions: _____

- VII. Procedure review with permit acceptors
- | | |
|---|--|
| Safety shower/eyewash (Location & Use) <input type="checkbox"/> Yes <input type="checkbox"/> NA | Emergency alarms <input type="checkbox"/> Yes <input type="checkbox"/> NA |
| Procedure for safe job completion <input type="checkbox"/> Yes <input type="checkbox"/> NA | Evacuation routes <input type="checkbox"/> Yes <input type="checkbox"/> NA |
| Contractor tools/equipment inspected <input type="checkbox"/> Yes <input type="checkbox"/> NA | Assembly points <input type="checkbox"/> Yes <input type="checkbox"/> NA |

- VIII. Equipment Preparation
- | | | | |
|--|--------------------------|--------------------------|--------------------------|
| Utility Locating and Excavation Clearance completed..... | Yes | No | NA |
| Equipment and Foot Traffic Routes Cleared and Established..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Physical Hazards Barricaded and Isolated..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Emergency Equipment Staged..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

- IX. Additional Permits required (Hot work, confined space entry, excavation etc.) Yes No
If yes, fill out appropriate section(s) on safety work permit addendum

X. Special instructions, precautions: _____

Permit Issued by: _____ Permit Accepted by: _____
 Job Completed by: _____ Date: _____

9.5 SITE VISITORS

Site visitors for the purpose of this document are identified as representing the following groups of individuals:

- Personnel invited to observe or participate in operations by TtNUS
- Regulatory personnel (DOD, OSHA, DEP, etc.)
- Northern Division Navy Personnel
- Other authorized visitors

It is not anticipated that this operation will result in a large number of site visitors. However, as some visitors can reasonably be expected, the following requirements will be enforced:

- All site visitors will be routed to the FOL, who will sign them in to the field logbook. Information to be recorded in the logbook will include the individual's name (proper identification required), who they represent, and purpose for the visit.
- All site visitors will be required to produce the necessary information supporting clearance onto the site. This includes information attesting to applicable training (40-hours of HAZWOPER training required for all Northern Division Navy personnel) and medical surveillance, as stipulated in Section 8 of this document. In addition, to enter the site's operational zones during planned activities, all visitors will be required to first go through site-specific training covering the topics stipulated in Section 8.2 of this document.

NOTE: All site visitors will be escorted at all times while at the site.

Following this, the site visitor will be permitted to enter the site and applicable operational areas. All visitors are required to observe the protective equipment and site restrictions in effect at the area of their visit. Any and all visitors not meeting the requirements as stipulated in this plan for site clearance will not be permitted to enter the site operational zones during planned activities. Any incidence of unauthorized site visitation will cause all onsite activities to be terminated until that visitor can be removed. Removal of unauthorized visitors will be accomplished with support from the IHDIV – NSWC contact, if necessary.

9.6 SITE SECURITY

Site security will be accomplished using TtNUS field personnel. TtNUS will retain complete control over active operational areas. Exclusion Zone barriers, and any existing barriers at the site will be used to restrict the general public. The second line of security will take place at the work site referring interested parties to the FOL or designee. The FOL will serve as a focal point for all non-project interested parties, and serve as the final line of security and the primary enforcement contact.

9.7 SITE MAP

Once the areas of contamination, access routes, topography, and dispersion routes are determined, a site map will be generated and adjusted as site conditions change. When possible, these maps will be posted to illustrate up-to-date collection of contaminants and adjustment of zones and access points.

9.8 BUDDY SYSTEM

Personnel engaged in on-site activities will practice the "buddy system" to ensure the safety of all personnel involved in this operation.

9.9 MATERIAL SAFETY DATA SHEET (MSDS) REQUIREMENTS

TtNUS and subcontractor personnel will provide MSDSs for all chemicals brought on site. The contents of these documents will be reviewed by the SSO with the user(s) of the chemical substances prior to any actual use or application of the substances on site. A chemical inventory of all chemicals used on site will be developed using the Health and Safety Guidance Manual. The MSDSs will then be maintained in a central location (i.e., temporary office) and will be available for anyone to review upon request.

9.10 COMMUNICATION

As personnel will be working in proximity to one another during field activities, a supported means of communication between field crews members will not be necessary. External communication will be accomplished by using the telephones at predetermined and approved locations. External communication will primarily be used for the purpose of resource and emergency resource communications. Prior to the commencement of activities, the FOL will determine and arrange for telephone communications.

10.0 SPILL CONTAINMENT PROGRAM

10.1 SCOPE AND APPLICATION

It is not anticipated that bulk hazardous materials (over 55-gallons) will be handled at any given time, or that any cylinders or containers will be unearthed, as part of this scope of work. It is also not anticipated that such spillage of Investigative Derived Wastes (IDW) would constitute a danger to human health or the environment. However, as the job progresses, the potential may exist for accumulating (IDW) such as decontamination fluids, soil cuttings, and purge and well development waters, in a central staging area. Once these fluids and other materials have been characterized, they can be removed from this area and properly disposed.

10.2 POTENTIAL SPILL AREAS

Potential spill areas will be periodically monitored in an ongoing attempt to prevent and control further potential contamination of the environment. Currently, limited areas are vulnerable to this hazard including:

- Resource deployment
- Waste transfer
- Central staging

It is anticipated that all IDW generated as a result of this scope of work will be containerized, labeled, and staged to await further analyses. The results of these analyses will determine the method of disposal.

10.3 LEAK AND SPILL DETECTION

To establish an early detection of potential spills or leaks, a periodic walk-around by the personnel staging or disposing of drums or in the resource deployment area will be conducted during working hours to visually determine that storage vessels are not leaking. If a leak is detected, the contents will be transferred, using a hand pump, into a new vessel. The leak will be collected and contained using absorbents such as Oil-Dry, vermiculite, or sand, which are stored at the vulnerable areas in a conspicuously marked drum. This used material, too, will be containerized for disposal pending analysis. All inspections will be documented in the project logbook.

It is not anticipated that any cylinders or containers will be unearthed during site activities. Should a cylinder or container be uncovered, however, work will immediately be stopped and personnel will retreat to a safe area until directed by the FOL or SSO.

10.4 PERSONNEL TRAINING AND SPILL PREVENTION

All personnel will be instructed in the procedures for incipient spill prevention, containment, and collection of hazardous materials in the site-specific training. The FOL and the SSO will serve as the Spill Response Coordinators for this operation, should the need arise.

10.5 SPILL PREVENTION AND CONTAINMENT EQUIPMENT

The following represents the minimum equipment that may be maintained (depending on anticipated need) at the staging areas at all times for the purpose of supporting this Spill Prevention/Containment Program.

- Sand, clean fill, vermiculite, or other non combustible absorbent (Oil-dry)
- Drums (55-gallon U.S. DOT 17-E or 17-H)
- Shovels, rakes, and brooms

10.5.1 PPE for Spill Control

Minimal PPE for spill control will be employed as needed. These materials may include:

- Nitrile work and inner gloves
- Tyvek coveralls
- Hard Hat
- Steel toed shoes with neoprene boot covers

10.6 SPILL CONTROL PLAN

This section describes the procedures the TtNUS field crewmembers will use upon the detection of a spill or leak.

1. Notify the SSO or FOL immediately upon detection of a leak or spill. Activate emergency alerting procedures for that area to remove all non-essential personnel.

2. Employ the personal protective equipment stored at the staging area. Take immediate actions to stop the leak or spill by plugging or patching the container or raising the leak to the highest point in the vessel. Spread the absorbent material in the area of the spill, covering it completely.
3. Transfer the material to a new vessel; collect and containerize the absorbent material. Label the new container appropriately. Await analyses for treatment and disposal options.
4. Re-containerize spills, including top cover impacted by the spill. Await test results for treatment or disposal options.

It is not anticipated that a spill will occur that the field crew cannot handle. Should this occur, notification of the appropriate Emergency Response agencies will be carried out by the FOL or SSO in accordance with the procedures discussed in Section 2.0 of this HASP.

11.0 CONFINED-SPACE ENTRY

Personnel under the provisions of this HASP are not allowed, under any circumstances, to enter confined spaces. A confined space is defined as an area that has one or more of the following characteristics:

- Is large enough and so configured that an employee can bodily enter and perform assigned work.
- Has limited or restricted means for entry or exit (for example, tanks, manholes, sewers, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry).
- Is not designed for continuous employee occupancy.

Additionally, a Permit-Required Confined Space may also have one or more of the following characteristics:

- Contains or has a potential to contain a hazardous atmosphere.
- Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly caving walls or by a floor that slopes downward and tapers to a smaller cross-section.
- Contains any other recognized, serious, safety or health hazard.

For further information on confined space operations, consult the Health and Safety Guidance Manual or call the HSM. Any activity that may be considered a confined-space entry shall require modifications of this HASP and shall result in the immediate notification of the Project Health and Safety Officer. This determination shall be made by the FOL and SSO.

12.0 MATERIALS AND DOCUMENTATION

The TtNUS FOL shall ensure the following materials/documents are taken to the project site and used when required.

- A complete copy of this HASP
- Health and Safety Guidance Manual
- Incident Reports
- Medical Data Sheets (multiple copies)
- Material Safety Data Sheets for all chemicals brought on site, including decon solutions, fuels, lime, sample preservatives, calibration gases, etc.
- A full-size OSHA Job Safety and Health Poster (See Attachment VI)
- Training/Medical Surveillance Documentation Form (Blank) (multiple copies)
- Emergency Reference Information (Section 2.0, extra copy for posting)

12.1 MATERIALS TO BE POSTED OR MAINTAINED AT THE SITE

The following documentation is to be posted or maintained at the site for quick reference purposes. In situations where posting of these documents is not feasible (such as no office trailer), these documents should be filed in a transportable file container and immediately accessible. The file should remain in the FOL's possession.

Chemical Inventory Listing (posted) - This list represents all chemicals brought on site, including decontamination solutions, sample preservatives, fuel, calibration gases, etc.. This list should be posted in a central area.

Material Safety Data Sheets (MSDSs) (maintained) - The MSDSs should also be in a central area accessible to all site personnel. These documents should match all the listings on the chemical inventory list for all substances employed on site. It is acceptable to have these documents within a central folder and the chemical inventory as the table of contents.

The OSHA Job Safety & Health Protection Poster (posted) - This poster, as directed by 29 CFR 1903.2 (a)(1), should be conspicuously posted in places where notices to employees are normally posted. Each FOL shall ensure that this poster is not defaced, altered, or covered by other material.

Site Clearance (maintained) - This is found within the training section of the HASP (See Figure 8-1). This list identifies all site personnel, dates of training (including site-specific training), and medical surveillance and indicates not only clearance but also status. If personnel do not meet these requirements, they do not enter the site while site personnel are engaged in activities.

Emergency Phone Numbers and Directions to the Hospital(s) (maintained) - This list of emergency numbers and hospital directions will be maintained at all phone communications points and in each site vehicle.

Medical Data Sheets/Cards (maintained) - Medical Data Sheets will be filled out by all onsite personnel and filed in a central location. The Medical Data Sheet will accompany any injury or illness requiring medical attention to the medical facility. A copy of this sheet or a wallet card will be given to all personnel to be carried on their person.

Investigative Derived Waste Inventory Log (maintained) – The FOL and/or the SSO shall log collected containers of IDW. An updated inventory will be submitted to the Base POC at the termination of each shift.

13.0 GLOSSARY

ACGIH	American Conference of Governmental Industrial Hygienists
CFR	Code of Federal Regulations
CIH	Certified Industrial Hygienist
CNS	Central Nervous System
CO	Carbon Monoxide
CRZ	Contamination Reduction Zone
CSE	Confined Space Entry
CSP	Certified Safety Professional
CTO	Contract Task Order
DCA	Dichloroethane
DOD	Department of Defense
DOT	Department of Transportation
EPA	Environmental Protection Agency
eV	electron Volts
FID	Flame Ionization Detector
FOL	Field Operations Leader
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
HEPA	High Efficiency Particulate Air
HSM	Health and Safety Manager
IHDIV – NSWC	Indian Head Division – Naval Surface Warfare Center
IDW	Investigative Derived Waste
LEL	Lower Explosive Limit
MSDS	Material Safety Data Sheet
N/A	Not Available
NIOSH	National Institute Occupational Safety and Health
NO ₂	Nitrogen Dioxide
O ₂	Oxygen
OSHA	Occupational Safety and Health Administration (U.S. Department of Labor)
PE	Professional Engineer
PEL	Permissible Exposure Limit
PHSO	Project Health and Safety Officer
PID	Photo Ionization Detector
PM	Project Manager

PPE	Personal Protective Equipment
PVC	Poly Vinyl Chloride
SOP	Standard Operating Procedure
SSO	Site Safety Officer
STEL	Short Term Exposure Limit
TBD	To Be Determined
TCE	Trichloroethylene
TPH	Total Petroleum Hydrocarbons
TtNUS	Tetra Tech NUS, Inc.
TWA	Time Weighted Average
UEL	Upper Explosive Limit
UST	Underground Storage Tank
UV	Ultraviolet

ATTACHMENT I
INJURY/ILLNESS PROCEDURE
AND REPORT FORM

**TETRA TECH NUS, INC.****INJURY/ILLNESS PROCEDURE
WORKER'S COMPENSATION PROGRAM**

**WHAT YOU SHOULD DO IF YOU ARE INJURED OR DEVELOP AN ILLNESS
AS A RESULT OF YOUR EMPLOYMENT:**

- If injury is minor, obtain appropriate first aid treatment.
- If injury or illness is severe or life threatening obtain professional medical treatment at the nearest hospital emergency room.
- If incident involves a chemical exposure on a project work site, follow instructions in the Health & Safety Plan.
- Immediately report any injury or illness to your supervisor or office manager. In addition, you must contact your Human Resources representative, Marilyn Diethorn at (412) 921-8475, and the Corporate Health and Safety Manager, Matt Soltis at (412) 921-8912 within 24 hours. You will be required to complete an Injury/Illness Report (attached). You may also be required to participate in a more detailed investigation from the Health Sciences Department.
- If further medical treatment is needed, The Hartford Network Referral Unit will furnish a list of network providers customized to the location of the injured employee. These providers are to be used for treatment of Worker's Compensation injuries subject to the laws of the state in which you work. Please call Marilyn Diethorn at (412) 921-8475 for the number of the Referral Unit.

ADDITIONAL QUESTIONS REGARDING WORKER'S COMPENSATION:

Contact your local human resources representative, corporate health and safety coordinator, or Corporate Administration in Pasadena, California, at (626) 351-4664.

Worker's compensation is a state-mandated program that provides medical and disability benefits to employees who become disabled due to job related injury or illness. Tetra Tech, Inc. and its subsidiaries (Tetra Tech or Company) pay premiums on behalf of their employees. The type of injuries or illnesses covered and the amount of benefits paid are regulated by the state worker's compensation boards and vary from state to state. Corporate Administration in Pasadena is responsible for administering the Company's worker's compensation program. The following is a general explanation of worker's compensation provided in the event that you become injured or develop an illness as a result of your employment with Tetra Tech or any of its subsidiaries. Please be aware that the term used for worker's compensation varies from state to state.

WHO IS COVERED:

All employees of Tetra Tech, whether they are on a full-time, part-time or temporary status, working in an office or in the field, are entitled to worker's compensation benefits.



case no. _____

All employees must follow the above injury/illness reporting procedures. Consultants, independent contractors, and employees of subcontractors are not covered by Tetra Tech's Worker's Compensation plan.

WHAT IS COVERED:

If you are injured or develop an illness caused by your employment, worker's compensation benefits are available to you subject to the laws of the state you work in. Injuries do not have to be serious; even injuries treated by first aid practices are covered and must be reported. Please note that if you are working out-of-state and away from your home office, you are still eligible for worker's compensation benefits.



case no. _____

**TETRA TECH NUS, INC.
INJURY/ILLNESS PROCEDURE
WORKER'S COMPENSATION PROGRAM**

To: Corporate Health and Safety Manager
Human Resource Administrator

Prepared by: _____

Position: _____

Project Name: _____

Office: _____

Project No. _____

Telephone: _____

Information Regarding Injured or Ill Employee:

Name: _____

Office: _____

Home address: _____

Gender: M F No. of dependents: _____

Marital status: _____

Home telephone: _____

Date of birth: _____

Occupation (regular job title): _____

Social Security No.: _____

Department: _____

Date of Accident: _____

Time of Accident: _____

Location of Accident Was place of accident or exposure on employer's premises Yes
No

Street address: _____

City, state, and zip code: _____

County: _____

Narrative Description of How Accident Occurred: (Be specific. Explain what the employee was doing and how the accident occurred.)



**TETRA TECH, INC.
INJURY/ILLNESS REPORT**

Did employee die? Yes No
Was employee performing regular job duties? Yes No
Was safety equipment provided? Yes No
Was safety equipment used? Yes No
Note: Attach any police reports or related diagrams to this accident report.

Witness(es):
Name: _____
Address: _____
Telephone: _____

Describe the Illness or Injury and Part of Body Affected:

Name the Object or Substance which Directly Injured the Employee:

<p>Medical Treatment Required: <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> First Aid Only Physician's Name: _____ Address: _____ Hospital or Office Name: _____ Address: _____ Telephone No.: _____</p>	<p>Lost Work Days: <input type="checkbox"/> No. of Lost Work Days _____ Last Date Worked _____ Time Employee Left Work _____ Date Employee Returned to Work _____ <input type="checkbox"/> No. of Restricted Work Days _____ <input type="checkbox"/> None</p>
--	---

Corrective Action(s) Taken by Unit Reporting the Accident:

Corrective Action Still to be Taken (by whom and when):

Name of Tetra Tech employee the injury or illness was first reported to: _____

Date of Report: _____ **Time of Report:** _____

	Printed Name	Signature	Telephone No.	Date
Project or Office Manager				
Site Safety Coordinator				
Injured Employee				

To be completed by Human Resources:

Date of hire: _____ Hire date in current job: _____

Wage information: \$ _____ per _____ (hour, day, week, or month)

Position at time of hire: _____

Shift hours: _____

State in which employee was hired: _____

Status: Full-time Part-time Hours per week: _____ Days per week: _____

Temporary job end date: _____

To be completed during report to workers' compensation insurance carrier:

Date reported: _____ Reported by: _____

TeleClaim phone number: _____

TeleClaim account number: _____

Location code: _____

Confirmation number: _____

Name of contact: _____

Field office of claims adjuster: _____

ATTACHMENT II
MEDICAL DATA SHEET

MEDICAL DATA SHEET

This Medical Data Sheet must be completed by all on-site personnel and kept in a central location during the execution of site operations. This data sheet will accompany any personnel when medical assistance is needed or if transport to hospital facilities is required.

Project Indian Head Division – Naval Surface Warfare Center

Name _____ Home Telephone _____

Address _____

Age _____ Height _____ Weight _____

Name of Next Kin _____

Drug or other Allergies _____

Particular Sensitivities _____

Do You Wear Contacts? _____

Provide a Checklist of Previous Illnesses or Exposure to Hazardous Chemicals _____

What medications are you presently using? _____

Do you have any medical restrictions? _____

Name, Address, and Phone Number of personal physician: _____

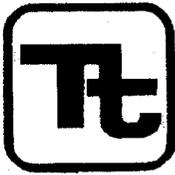
I am the individual described above. I have read and understand this HASP.

Signature

Date

ATTACHMENT III

**STANDARD OPERATING PROCEDURE
FOR
UTILITY LOCATING AND EXCAVATION CLEARANCE**



TETRA TECH NUS, INC.

STANDARD OPERATING PROCEDURES

Number	HS-1.0	Page	1 of 11
Effective	03/00	Date	Revision
			1
Applicability	Tetra Tech NUS, Inc.		
Prepared	Health & Safety		
Approved	D. Senovich <i>DS</i>		

Subject
UTILITY LOCATING AND EXCAVATION CLEARANCE

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1.0 PURPOSE

Utilities such as electric service lines, natural or propane gas lines, water and sewage lines, telecommunications, and steam lines are very often in the immediate vicinity of work locations. Contact with underground or overhead utilities can have serious consequences including employee injury/fatality, property and equipment damage, substantial financial impacts, and loss of utility service to users.

The purpose of this procedure is to provide minimum requirements and technical guidelines regarding the appropriate procedures to be followed when performing subsurface and overhead utility locating services. It is the policy of Tetra Tech NUS, Inc. (TtNUS) to provide a safe and healthful work environment for the protection of our employees. The purpose of this Standard Operating Procedure (SOP) is to aid in achieving the objectives of the TtNUS Utility Locating and Clearance Policy. The TtNUS Utility Locating and Clearance Policy must be reviewed by anyone potentially involved with underground or overhead utility services.

2.0 SCOPE

This procedure applies to all TtNUS field activities where there may be potential contact with underground or overhead utilities. This procedure provides a description of the principles of operation, instrumentation, applicability, and implementability of typical methods used to determine the presence or absence of utility services. This procedure is intended to assist with work planning and scheduling, resource planning, field implementation, and subcontractor procurement. Utility locating and excavation clearance requires site-specific information prior to the development of detailed operating procedures. This guidance is not intended to provide a detailed description of methodology and instrument operation. Specialized expertise during both planning and execution of several of the geophysical methods may also be required.

3.0 GLOSSARY

Electromagnetic Induction (EMI) Survey - A geophysical exploration method whereby electromagnetic fields are induced in the ground and the resultant secondary electromagnetic fields are detected as a measure of ground conductivity.

Magnetometer - A device used for precise and sensitive measurements of magnetic fields.

Magnetic Survey - A geophysical survey method that depends on detection of magnetic anomalies caused by the presence of buried ferromagnetic objects.

Metal Detection - A geophysical survey method that is based on electromagnetic coupling caused by underground conductive objects.

Vertical Gradiometer - A magnetometer equipped with two sensors that are vertically separated by a fixed distance. It is best suited to map near surface features and is less susceptible to deep geologic features.

Ground Penetrating Radar - Ground Penetrating Radar (GPR) involves specialized radar equipment whereby a signal is sent into the ground via a transmitter. Some portion of the signal will be reflected from the subsurface material, which is then recorded with a receiver and electronically converted into a graphic picture.

4.0 RESPONSIBILITIES

Project Manager (PM)/Task Order Manager (TOM) - Responsible for ensuring that all field activities are conducted in accordance with this procedure and the TtNUS Utility Locating and Clearance Policy.

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Site Manager (SM)/Field Operations Leader (FOL) - Responsible for the onsite verification that all field activities are performed in compliance with approved SOPs or as otherwise directed by the approved project plan(s).

Site Health & Safety Officer (SHSO) – Responsible to provide technical assistance and verify full compliance with this SOP and the TtNUS Utility Locating and Clearance Policy. The SHSO is also responsible for reporting any deficiencies to the Corporate Health and Safety Manager (HSM) and to the PM/TOM.

Health & Safety Manager (HSM) – Responsible for preparing, implementing, and modifying corporate health and safety policy.

Site Personnel – Responsible for understanding and implementing this SOP and the TtNUS Utility Locating and Clearance Policy.

5.0 PROCEDURES

This procedure addresses the requirements and technical procedures that must be performed to minimize the potential for contact with underground and overhead utility services. These procedures are addressed individually from a buried and overhead standpoint.

5.1 Buried Utilities

Buried utilities present a heightened concern because their location is not typically obvious by visual observation, and it is common that their presence and/or location is unknown or incorrectly known on client properties. The following procedure must be followed prior to beginning any excavation that might potentially be in the vicinity of underground utility services. In addition, the Utility Clearance Form (Attachment 3) must be completed for every location or cluster of locations where intrusive activities will occur.

Where the positive identification and de-energizing of underground utilities cannot be obtained and confirmed using the following steps, the PM/TOM is responsible for arranging for the procurement of a qualified, experienced, utility locating subcontractor who will accomplish the utility location and demarcation duties specified herein.

1. A comprehensive review must be made of any available property maps, blue lines, or as-builts prior to site activities. Interviews with local personnel familiar with the area should be performed to provide additional information concerning the location of potential underground utilities. Information regarding utility locations shall be added to project maps upon completion of this exercise.
- 2., A visual site inspection must be performed to compare the site plan information to actual field conditions. Any findings must be documented and the site plan/maps revised. The area(s) of proposed excavation or other subsurface activities must be marked at the site in white paint or pin flags to identify those locations of the proposed intrusive activities. The site inspection should focus on locating surface indications of potential underground utilities. Items of interest include the presence of nearby area lights, telephone service, drainage grates, fire hydrants, electrical service vaults/panels, asphalt/concrete scapes and patches, and topographical depressions. Note the location of any emergency shut off switches. Any additional information regarding utility locations shall be added to project maps upon completion of this exercise and returned to the PM/TOM.

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3. If the planned work is to be conducted on private property (e.g., military installations, manufacturing facilities, etc.) the FOL must identify and contact appropriate facility personnel (e.g., public works or facility engineering) before any intrusive work begins to inquire about (and comply with) property owner requirements. It is important to note that private property owners may require several days to several weeks advance notice prior to locating utilities.
4. If the work location is on public property, the state agency that performs utility clearances must be notified (see Attachment 1). State "one-call" services must be notified prior to commencing fieldwork per their requirements. Most one-call services require, by law, 48- to 72-hour advance notice prior to beginning any excavation. Such services typically assign a "ticket" number to the particular site. This ticket number must be recorded for future reference and is valid for a specific period of time, but may be extended by contacting the service again. The utility service will notify utility representatives who then mark their respective lines within the specified time frame. It should be noted that most military installations own their own utilities but may lease service and maintenance from area providers. Given this situation, "one call" systems may still be required to provide location services on military installations.
5. Utilities must be identified and their locations plainly marked using pin flags, spray paint, or other accepted means. The location of all utilities must be noted on a field sketch for future inclusion on project maps. Utility locations are to be identified using the following industry-standard color code scheme, unless the property owner or utility locator service uses a different color code:

white	excavation/subsurface investigation location
red	electrical
yellow	gas, oil, steam
orange	telephone, communications
blue	water, irrigation, slurry
green	sewer, drain
6. Where utility locations are not confirmed with a high degree of confidence through drawings, schematics, location services, etc., the work area must be thoroughly investigated prior to beginning the excavation. In these situations, utilities must be identified using such methods as passive and intrusive surveys, physical probing, or hand augering. Each method has advantages and disadvantages including complexity, applicability, and price. It also should be noted that in many states, initial excavation is required by hand to a specified depth.
7. At each location where trenching or excavating will occur using a backhoe or other heavy equipment, and where utility identifications and locations cannot be confirmed prior to groundbreaking, the soil must be probed with a hand auger or pole (tile probe) made of non-conductive material. If these efforts are not successful in clearing the excavation area of suspect utilities, hand shoveling must be performed for the perimeter of the intended excavation.
8. All utilities uncovered or undermined during excavation must be structurally supported to prevent potential damage. Unless necessary as an emergency corrective measure, TtNUS shall not make any repairs or modifications to existing utility lines without prior permission of the utility owner, property owner, and Corporate HSM. All repairs require that the line be locked-out/tagged-out prior to work.

5.2 Overhead Power Lines

If it is necessary to work within the minimum clearance distance of an overhead power line, the overhead line must be de-energized and grounded, or re-routed by the utility company or a registered electrician. If protective measures such as guarding, isolating, or insulating are provided, these precautions must be

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adequate to prevent employees from contacting such lines directly with any part of their body or indirectly through conductive materials, tools, or equipment.

The following table provides the required minimum clearances for working in proximity to overhead power lines.

<u>Nominal Voltage</u>	<u>Minimum Clearance</u>
0 -50 kV	10 feet, or one mast length; whichever is greater
50+ kV	10 feet plus 4 inches for every 10 kV over 50 kV or 1.5 mast lengths; whichever is greater

6.0 UNDERGROUND LOCATING TECHNIQUES

6.1 Geophysical Methods

Geophysical methods include electromagnetic induction, magnetics, and ground penetrating radar. Additional details concerning the design and implementation of electromagnetic induction, magnetics, and ground penetrating radar surveys can be found in one or more of the TtNUS SOPs included in the References (Section 8.0).

Electromagnetic Induction

Electromagnetic Induction (EMI) line locators operate either by locating a background signal or by locating a signal introduced into the utility line using a transmitter. A utility line acts like a radio antenna, producing electrons, which can be picked up with a radiofrequency receiver. Electrical current carrying conductors have a 60HZ signal associated with them. This signal occurs in all power lines regardless of voltage. Utilities in close proximity to power lines or used as grounds may also have a 60HZ signal, which can be picked up with an EM receiver. A typical example of this type of geophysical equipment is an EM-61.

EMI locators specifically designed for utility locating use a special signal that is either indirectly induced onto a utility line by placing the transmitter above the line or directly induced using an induction clamp. The clamp induces a signal on the specific utility and is the preferred method of tracing since there is little chance of the resulting signals being interfered with. A good example of this type of equipment is the Schonstedt® MAC-51B locator. The MAC-51B performs inductively traced surveys, simple magnetic locating, and traced nonmetallic surveys.

When access can be gained inside a conduit to be traced, a flexible insulated trace wire can be used. This is very useful for non-metallic conduits but is limited by the availability of gaining access inside the pipe.

Magnetics

Magnetic locators operate by detecting the relative amounts of buried ferrous metal. They are incapable of locating or identifying nonferrous utility lines but can be very useful for locating underground storage tanks (UST's), steel utility lines, and buried electrical lines. A typical example of this type of equipment is the Schonstedt® GA-52Cx locator. The GA-52Cx is capable of locating 4-inch steel pipe up to 8 feet deep.

Non-ferrous lines are often located by using a typical plumbing tool (snake) fed through the line. A signal is then introduced to the snake that is then traced.

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Ground Penetrating Radar

Ground Penetrating Radar (GPR) involves specialized radar equipment whereby a signal is sent into the ground via a transmitter. Some portion of the signal will be reflected from the subsurface material, which is then recorded with a receiver and electronically converted into a graphic picture. In general, an object which is harder than the surrounding soil will reflect a stronger signal. Utilities, tunnels, UST's, and footings will reflect a stronger signal than the surrounding soil. Although this surface detection method may determine the location of a utility, this method does not specifically identify utilities (i.e., water vs. gas, electrical vs. telephone); hence, verification may be necessary using other methods. This method is somewhat limited when used in areas with clay soil types or with a high water table.

6.2 Passive Detection Surveys

Acoustic Surveys

Acoustic location methods are generally most applicable to waterlines or gas lines. A highly sensitive Acoustic Receiver listens for background sounds of water flowing (at joints, leaks, etc.) or to sounds introduced into the water main using a transducer. Acoustics may also be applicable to determine the location of plastic gas lines.

Thermal Imaging

Thermal (i.e., infrared) imaging is a passive method for detecting the heat emitted by an object. Electronics in the infrared camera convert subtle heat differentials into a visual image on the viewfinder or a monitor. The operator does not look for an exact temperature; rather they look for heat anomalies (either elevated or suppressed temperatures) characteristic of a potential utility line.

The thermal fingerprint of underground utilities results from differences in temperature between the atmosphere and the fluid present in a pipe or the heat generated by electrical resistance. In addition, infrared scanners may be capable of detecting differences in the compaction, temperature and moisture content of underground utility trenches. High-performance thermal imagery can detect temperature differences to hundredths of a degree.

6.3 Intrusive Detection Surveys

Vacuum Excavation

Vacuum excavation is used to physically expose utility services. The process involves removing the surface material over approximately a 1' x 1' area at the site location. The air-vacuum process proceeds with the simultaneous action of compressed air-jets to loosen soil and vacuum extraction of the resulting debris. This process ensures the integrity of the utility line during the excavation process, as no hammers, blades, or heavy mechanical equipment comes into contact with the utility line, eliminating the risk of damage to utilities. The process continues until the utility is uncovered. Vacuum excavation can be used at the proposed site location to excavate below the "utility window" which is usually 8 feet.

Hand-auger Surveys

When the identification and location of underground utilities cannot be positively confirmed through document reviews and/or other methods, borings must be hand-augered for all locations where there is a potential to impact buried utilities. The minimum hand-auger depth that must be reached is to be determined considering the geographical location of the work site. This approach recognizes that the

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placement of buried utilities is influenced by frost line depths that vary by geographical region. Attachment 2 presents frost line depths for the regions of the contiguous United States. At a minimum, hand-auger depths must be at least to the frost line depth plus two (2) feet, but never less than 4 feet below ground surface (bgs). For augering, the hole must be reamed by hand to at least the diameter of the drill rig auger or bit prior to drilling. For soil gas surveys, the survey probe shall be placed as close as possible to the cleared hand-auger. It is important to note that a post-hole digger must not be used in place of a hand-auger.

Tile Probe Surveys

For some soil types, site conditions, and excavation requirements, tile probes may be used instead of or in addition to hand-augers. Tile probes must be performed to the same depth requirements as hand-augers. Depending upon the site conditions and intended probe usage, tile probes should be made of non-conductive material such as fiberglass.

7.0 INTRUSIVE ACTIVITIES SUMMARY

The following list summarizes the activities that must be performed prior to beginning subsurface activities:

1. Map and mark all subsurface locations and excavation boundaries using white paint or markers specified by the client or property owner.
2. Notify the property owner and/or client that the locations are marked. At this point, drawings of locations or excavation boundaries shall be provided to the property owner and/or client so they may initiate (if applicable) utility clearance.

Note: Drawings with confirmed locations should be provided to the property owner and/or client as soon as possible to reduce potential time delays.

3. Notify "One Call" service. If possible, arrange for an appointment to show the One Call representative the subsurface locations or excavation boundaries in person. This will provide a better location designation to the utilities they represent. You should have additional drawings should you need to provide plot plans to the One Call service.
4. Complete Attachment 3, Utility Clearance Form. This form should be completed for each excavation location. In situations where multiple subsurface locations exist within the close proximity of one another, one form may be used for multiple locations provided those locations are noted on the Utility Clearance Form. Upon completion, the Utility Clearance Form and revised/annotated utility location map becomes part of the project file.

8.0 REFERENCES

TtNUS Utility Locating and Clearance Policy
TtNUS SOP GH-3.1; Resistivity and Electromagnetic Induction
TtNUS SOP GH-3.2; Magnetic and Metal Detection Surveys
TtNUS SOP GH-3.4; Ground-penetrating Radar Surveys

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**ATTACHMENT 1
LISTING OF UNDERGROUND UTILITY CLEARANCE RESOURCES**

ALABAMA Alabama Line Location (800) 292-8525 Tucson Blue Stake Center (800) 782-5348	Maine Dig Safe – Maine (800) 225-4977
Alaska Locate Call Center of Alaska Inc. (800) 478-3121	Maryland Miss Utility (800) 257-777 Miss Utility of Delmarva (800) 282-8555
Arizona Arizona Blue Stake Inc. (800) 782-5348	Massachusetts Dig Safe – Massachusetts (800) 322-4844
Arkansas Arkansas One Call System Inc. (800) 482-8998	Michigan Miss Dig System (800) 482-7171
California Underground Service Alert North (800) 227-2600 Underground Service Alert South (800) 227-2600	Minnesota Gopher State One Call (800) 252-1166
Colorado Utility Notification Center of Colorado (800) 922-1987	Mississippi Mississippi One-Call System Inc. (800) 227-6477
Connecticut Call Before You Dig (800) 922-4455	Missouri Missouri One Call System Inc. (800) 344-7483
Delaware Miss Utility of Delmarva (800) 282-8555	Montana Utilities Underground Location Center (800) 424-5555 Montana One Call Center (800) 551-8344
District of Columbia Miss Utility (800) 257-7777	Nebraska Diggers Hotline of Nebraska (800) 331-5666
Florida Call Sunshine (800) 432-4770	Nevada Underground Service Alert North (800) 227-2600
Georgia Utilities Protection Center Inc. (800) 282-7411	New Hampshire Dig Safe – New Hampshire (800) 225-4977
Idaho Palouse Empire Underground Coordinating Council (800) 882-1974 Utilities Underground Location Center (800) 424-5555 Kootenai Country Utility Coordinating Council (800) 428-4950 Shoshone County One Call (800) 398-3285 Dig Line (800) 342-1585 One Call Concepts (800) 626-4950	New Jersey New Jersey One Call (800) 272-1000
Illinois Julie Inc. (800) 892-0123 Digger (Chicago Utility Alert Network) (312) 744-7000	New Mexico New Mexico One Call System Inc. (800) 321-ALERT Las Cruces-Dona Utility Council (505) 526-0400
Indiana Indiana Underground Plant Protection Services (800) 382-5544	New York Underground Facilities Protection Organization (800) 962-7962 New York City: Long Island One Call Center (800) 272-4480
Iowa Underground Plant Location Service Inc. (800) 292-8989	North Carolina The North Carolina One-Call Center Inc. (800) 632-4949
Kansas Kansas One-Call Center (800) 344-7233	North Dakota Utilities Underground Location Center (800) 795-0555
Kentucky Kentucky Underground Protection Inc. (800) 752-6007	Ohio Ohio Utilities Protection Service (800) 362-2764 Oil & Gas Producers Underground Protection Service (800) 925-0988
Louisiana Louisiana One Call (800) 272-3020	Oklahoma Call Okie (800) 522-6543

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Oregon Utilities Underground Location Center (800) 424-5555 Douglas Utilities Coordinating Council (503) 673-6676 Josephine Utilities Coordinating Council (503) 476-6676 Rogue Basin Utility Coordinating Council (503) 779-6676 Utilities Notification Center (800) 332-2344
Pennsylvania Pennsylvania One Call System Inc. (800) 242-1776
Rhode Island Dig Safe – Rhode Island (800) 225-4977
South Carolina Palmetto Utility Protection Service Inc. (800) 922-0983
South Dakota South Dakota One Call (800) 781-7474
Tennessee Tennessee One-Call System (800) 351-1111
Texas Texas One Call System (800) 245-4545 Texas Excavation Safety System (800) 344-8377 Lone Star Notification Center (800) 669-8344
Utah Blue Stakes Location Center (800) 662-4111
Vermont Dig Safe – Vermont (800) 225-4977
Virginia Miss Utility of Virginia (800) 552-7001 Miss Utility (800) 257-7777 Miss Utility of Delmarva (800) 441-8355
Washington Utilities Underground Location Center (800) 424-5555 Grays Harbor & Pacific County Utility Coordinating Council (206) 535-3550 Utilities County of Cowlitz County (360) 425-2506 Chelan-Douglas Utilities Coordinating Council (509) 663-6111 Upper Yakima County Underground Utilities Council (800) 553-4344 Inland Empire Utility Coordinating Council (509) 456-8000 Palouse Empire Utilities Coordinating Council (800) 822-1974 Utilities Notification Center (800) 332-2344
West Virginia Miss Utility of West Virginia Inc. (800) 245-4848
Wisconsin Diggers Hotline Inc. (800) 242-8511

Wyoming West Park Utility Coordinating Council (307) 587-4800 Call-In Dig-In Safety Council (800) 300-9811 Fremont County Utility Coordinating Council (800) 489-8023 Central Wyoming Utilities Coordinating Council (800) 759-8035 Southwest Wyoming One Call (307) 362-8888 Carbon County Utility Utility Coordinating Council (307) 324-6666 Albany County Utility Coordinating Council (307) 742-3615 Southeast Wyoming Utilities Coordinating Council (307) 638-6666 Wyoming One-Call (800) 348-1030 Utilities Underground Location Center (800) 454-5555 Converse County Utility Coordination Council (800) 562-5561

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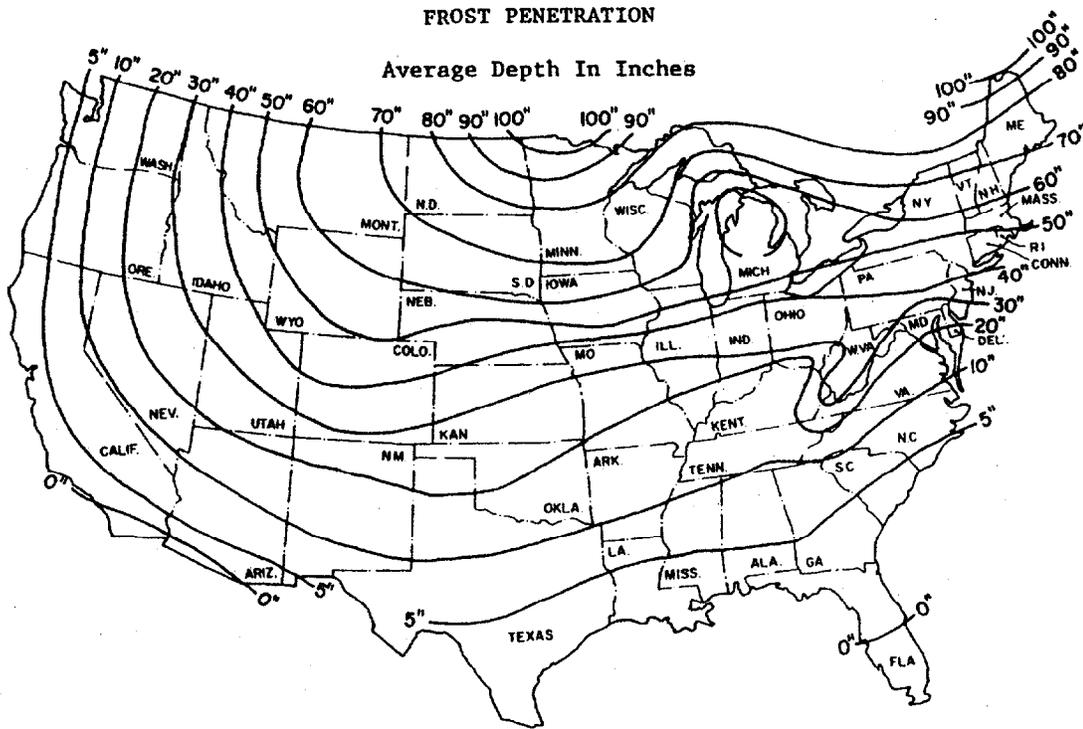
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ATTACHMENT 2

FROST LINE PENETRATION DEPTHS BY GEOGRAPHIC LOCATION



Courtesy U.S. Department Of Commerce

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**ATTACHMENT 3
UTILITY CLEARANCE FORM**

Client: _____ Project Name: _____
 Project No.: _____ Completed By: _____
 Location Name: _____ Work Date: _____
 Excavation Method/Overhead Equipment: _____

1. **Underground Utilities** Circle One
- a) Review of existing maps? yes no N/A
 - b) Interview local personnel? yes no N/A
 - c) Site visit and inspection? yes no N/A
 - d) Excavation areas marked in the field? yes no N/A
 - e) Utilities located in the field? yes no N/A
 - f) Located utilities marked/added to site maps? yes no N/A
 - g) Client contact notified yes no N/A
 Name _____ Telephone: _____ Date: _____
 - g) State One-Call agency called? yes no N/A
 Caller: _____
 Ticket Number: _____ Date: _____
 - h) Geophysical survey performed? yes no N/A
 Survey performed by: _____
 Method: _____ Date: _____
 - i) Hand augering performed? yes no N/A
 Augering completed by: _____
 Total depth: _____ feet Date: _____
 - j) Trench/excavation probed? yes no N/A
 Probing completed by: _____
 Depth/frequency: _____ Date: _____

2. **Overhead Utilities** Present Absent
- a) Determination of nominal voltage yes no N/A
 - b) Marked on site maps yes no N/A
 - c) Necessary to lockout/insulate/re-route yes no N/A
 - d) Document procedures used to lockout/insulate/re-route yes no N/A
 - e) Minimum acceptable clearance (SOP Section 5.2): _____

3. **Notes:**

Approval: _____
 Site Manager/Field Operations Leader Date _____
c: PM/Project File
Program File

ATTACHMENT IV
EQUIPMENT INSPECTION CHECKLIST

EQUIPMENT INSPECTION

COMPANY: _____ **UNIT NO.** _____

FREQUENCY: Inspect daily, document prior to use and as repairs are needed.

Inspection Date: ____/____/____ Time: _____ Equipment Type: _____
(e.g., bulldozer)

	Good	Need Repair	N/A
Tires or tracks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hoses and belts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cab, mirrors, safety glass	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Turn signals, lights, brake lights, etc. (front/rear) for equipment approved for highway use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Is the equipment equipped with audible back-up alarms and back-up lights?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Horn and gauges	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brake condition (dynamic, park, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fire extinguisher (Type/Rating - _____)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fluid Levels:			
- Engine oil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Transmission fluid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Brake fluid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Cooling system fluid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Windshield wipers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Hydraulic oil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oil leak/lube	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Coupling devices and connectors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Exhaust system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Blade/boom/ripper condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Accessways: Frame, hand holds, ladders, walkways (non-slip surfaces), guardrails?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Power cable and/or hoist cable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Steering (standard and emergency)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Safety Guards:

	Yes	No
- Around rotating apparatus (belts, pulleys, sprockets, spindles, drums, flywheels, chains) all points of operations protected from accidental contact? _____	<input type="checkbox"/>	<input type="checkbox"/>
- Hot pipes and surfaces exposed to accidental contact? _____	<input type="checkbox"/>	<input type="checkbox"/>
- All emergency shut offs have been identified and communicated to the field crew? _____	<input type="checkbox"/>	<input type="checkbox"/>
- Have emergency shutoffs been field tested? _____	<input type="checkbox"/>	<input type="checkbox"/>
- Results? _____	<input type="checkbox"/>	<input type="checkbox"/>
- Are any structural members bent, rusted, or otherwise show signs of damage? _____	<input type="checkbox"/>	<input type="checkbox"/>
- Are fueling cans used with this equipment approved type safety cans? _____	<input type="checkbox"/>	<input type="checkbox"/>

- Have the attachments designed for use (as per manufacturer's recommendation) with this equipment been inspected and are considered suitable for use? _____

Portable Power Tools:

- Tools and Equipment in Safe Condition? _____
- Saw blades, grinding wheels free from recognizable defects (grinding wheels have been sounded)? _____
- Portable electric tools properly grounded? _____
- Damage to electrical power cords? _____
- Blade guards in place? _____
- Components adjusted as per manufacturers recommendation? _____

Cleanliness:

- Overall condition (is the decontamination performed prior to arrival on-site considered acceptable)? _____
- Where was this equipment used prior to its arrival on site? _____
- Site Contaminants of concern at the previous site? _____
- Inside debris (coffee cups, soda cans, tools and equipment) blocking free access to foot controls? _____

Operator Qualifications (as applicable for all heavy equipment):

- Does the operator have proper licensing where applicable, (e.g., CDL)? _____
- Does the operator, understand the equipments operating instructions? _____
- Is the operator experienced with this equipment? _____
- Does the operator have emotional and/or physical limitations which would prevent him/her from performing this task in a safe manner? _____
- Is the operator 21 years of age or more? _____

Identification:

- Is a tagging system available, for positive identification, for tools removed from service? _____

Additional Inspection Required Prior to Use On-Site

- | | Yes | No |
|--|--------------------------|--------------------------|
| - Does equipment emit noise levels above 90 decibels? | <input type="checkbox"/> | <input type="checkbox"/> |
| - If so, has an 8-hour noise dosimetry test been performed? | <input type="checkbox"/> | <input type="checkbox"/> |
| - Results of noise dosimetry: _____ | | |
| - Defects and repairs needed: _____ | | |
| - General Safety Condition: _____ | | |
| - Operator or mechanic signature: _____ | | |
| Approved for Use: <input type="checkbox"/> Yes <input type="checkbox"/> No | | |

Site Safety Officer Signature

ATTACHMENT V
SAFE WORK PERMITS

**SAFE WORK PERMIT FOR
SOIL BORINGS AND WELL INSTALLATION
IHDIV-NSWC SITES 32, 33, 34, 37, 51 & 52
INDIAN HEAD, MARYLAND**

Permit No. _____ Date: _____ Time: From _____ to _____

SECTION I: General Job Scope

- I. Work limited to the following (description, area, equipment used): Hollow Stem Auger drilling and monitoring well installation.
- II. Required Monitoring Instruments: PID with a 10.6eV or higher lamp source
- III. Field Crew: _____
- IV. On-site Inspection conducted Yes No Initials of Inspector TtNUS

SECTION II: General Safety Requirements (To be filled in by permit issuer)

- | | |
|---|---|
| IV. Protective equipment required
Level D <input checked="" type="checkbox"/> Level B <input type="checkbox"/>
Level C <input type="checkbox"/> Level A <input type="checkbox"/>
Detailed on Reverse | Respiratory equipment required
Full face APR <input type="checkbox"/> Escape Pack <input type="checkbox"/>
Half face APR <input type="checkbox"/> SCBA <input type="checkbox"/>
SAR <input type="checkbox"/> Bottle Trailer <input type="checkbox"/>
Skid Rig <input type="checkbox"/> None <input checked="" type="checkbox"/> |
|---|---|

Modifications/Exceptions: Minimum requirement include sleeved shirt and long pants, safety shoes, safety glasses, and hardhat. Hearing protection required when working in close proximity to rig or other noise sources. Nitrile gloves or leather gloves with surgical-style inner gloves, Tyvek coveralls, and boot covers when contact with potentially contaminated media exists.

VI. Chemicals of Concern	Action Level(s)	Response Measures
VOC; SVOC; Metals; PCBs		
Total particulates	>2.0 mg/kg (visible dust)	Wet area for dust control or
Any sustained PID readings	Check with Vinyl chloride tubes	
If positive for Vinyl chloride	Any detection	Retreat to safe area and return when clear

- VI. Additional Safety Equipment/Procedures
- | | | |
|-------------------------------|---|--|
| Hard-hat..... | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Hearing Protection (Plugs/Muffs) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| Safety Glasses | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Safety belt/harness <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| Chemical/splash goggles..... | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | Radio <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| Splash Shield..... | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | Barricades <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| Splash suits/coveralls | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | Gloves (Type - Nitrile) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| Steel toe Work shoes or boots | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Work/rest regimen <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |

Modifications/Exceptions: Reflective vests for high traffic areas. Tyvek coverall and impermeable boots if there is a potential for soiling work clothes. Hearing protection during intrusive activities, or as directed by the SSO.

- | | | | |
|--|-------------------------------------|--------------------------|-------------------------|
| VII. Procedure review with permit acceptors | Yes | NA | |
| Safety shower/eyewash (Location & Use) | <input checked="" type="checkbox"/> | <input type="checkbox"/> | Emergency alarms |
| Procedure for safe job completion | <input checked="" type="checkbox"/> | <input type="checkbox"/> | Evacuation routes |
| Contractor tools/equipment/PPE inspected | <input checked="" type="checkbox"/> | <input type="checkbox"/> | Assembly points |

- | | | | |
|---|-------------------------------------|--------------------------|--------------------------|
| VIII. Site Preparation | Yes | No | NA |
| Utility Locating and Excavation Clearance completed | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Vehicle and Foot Traffic Routes Cleared and Established | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Physical Hazards Barricaded and Isolated | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Emergency Equipment Staged | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

- IX. Additional Permits required (Hot work, confined space entry, excavation etc.) Yes No
 If yes, complete permit required or contact Health Sciences, Pittsburgh Office

- X. Special instructions, precautions: Avoid generating any airborne dusts.

Permit Issued by: _____ Permit Accepted by: _____

**SAFE WORK PERMIT
MULTI-MEDIA SAMPLING
IHDIV-NSWC SITES 32, 33, 34, 51 & 52
INDIAN HEAD, MARYLAND**

Permit No. _____ Date: _____ Time: From _____ to _____

SECTION I: General Job Scope

I. Work limited to the following (description, area, equipment used): Multi-media sampling including surface, subsurface soils and groundwater. IDW sampling is also included in this task.

II. Required Monitoring Instrument(s): FID or PID w/10.6 eV lamp (or higher) lamp source for precautionary measures

III. Field Crew: _____

IV. On-site inspection conducted Yes No Initials of Inspector TINUS

SECTION II: General Safety Requirements (To be filled in by permit issuer)

IV. Protective equipment required	Respiratory equipment required	
Level D <input checked="" type="checkbox"/> Level B <input type="checkbox"/>	Full face APR <input type="checkbox"/>	Escape Pack <input type="checkbox"/>
Level C <input type="checkbox"/> Level A <input type="checkbox"/>	Half face APR <input type="checkbox"/>	SCBA <input type="checkbox"/>
Detailed on Reverse	SAR <input type="checkbox"/>	Bottle Trailer <input type="checkbox"/>
	Skid Rig <input type="checkbox"/>	None <input checked="" type="checkbox"/>

Modifications/Exceptions: Minimum requirement include sleeved shirt and long pants, safety shoes, surgical style gloves, and safety glasses. Hard hats and hearing protection will be worn when working near operating equipment or when required by the SSO. Reflective vests will be worn when working in areas exposed to traffic hazards. Tyvek coveralls will be used when handling saturated soils or where similar hazards exist.

V. Chemicals of Concern	Action Level(s)	Response Measures
<u>Metals</u>		
<u>Total particulates</u>	<u>>2.0 mg/kg (visible dust)</u>	<u>Wet area for dust control</u>
<u>Any sustained PID readings</u>	<u>>background/BZ/ >1 minute duration</u>	<u>Retreat to safe area and return when clear</u>

VI. Additional Safety Equipment/Procedures

Hard-hat.....	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Hearing Protection (Plugs/Muffs) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Safety Glasses	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Safety belt/harness <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Chemical/splash goggles.....	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Radio <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Splash Shield.....	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Barricades <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Splash suits/coveralls	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Gloves (Type – <u>Surgical Style</u>) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Steel toe Work shoes or boots	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Work/rest regimen <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Modifications/Exceptions: Reflective vests for high traffic areas. Tyvek coverall if there is a potential for soiling work clothes.

VII. Procedure review with permit acceptors	Yes	NA	Yes	NA
Safety shower/eyewash (Location & Use)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Procedure for safe job completion	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Contractor tools/equipment/PPE inspected	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Emergency alarms			<input checked="" type="checkbox"/>	<input type="checkbox"/>
Evacuation routes			<input checked="" type="checkbox"/>	<input type="checkbox"/>
Assembly points.....			<input checked="" type="checkbox"/>	<input type="checkbox"/>

VIII. Site Preparation	Yes	No	NA
Utility Locating and Excavation Clearance completed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Vehicle and Foot Traffic Routes Cleared and Established	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Physical Hazards Barricaded and Isolated	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Emergency Equipment Staged	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

IX. Additional Permits required (Hot work, confined space entry, excavation etc.) Yes No
If yes, complete permit required or contact Health Sciences, Pittsburgh Office

X. Special instructions, precautions: Minimize contact with potentially contaminated media (soils, groundwater etc.). Wash hands and face before performing any hand to mouth activities.

Permit Issued by: _____ Permit Accepted by: _____

**SAFE WORK PERMIT
MULTI-MEDIA SAMPLING
IHDIV-NSWC SITE 37 AND 42
INDIAN HEAD, MARYLAND**

Permit No. _____ Date: _____ Time: From _____ to _____

SECTION I: General Job Scope

I. Work limited to the following (description, area, equipment used): Multi-media sampling including surface, subsurface soils and groundwater. IDW sampling is also included in this task.

II. Required Monitoring Instrument(s): FID or PID with 10.6 eV lamp (or higher) lamp source Colormetric tube 0.5/b Vinyl Chloride for Site 42.

III. Field Crew: _____

IV. On-site inspection conducted Yes No Initials of Inspector TtNUS

SECTION II: General Safety Requirements (To be filled in by permit issuer)

IV. Protective equipment required	Respiratory equipment required	
Level D <input checked="" type="checkbox"/> Level B <input type="checkbox"/>	Full face APR <input type="checkbox"/>	Escape Pack <input type="checkbox"/>
Level C <input type="checkbox"/> Level A <input type="checkbox"/>	Half face APR <input type="checkbox"/>	SCBA <input type="checkbox"/>
Detailed on Reverse	SAR <input type="checkbox"/>	Bottle Trailer <input type="checkbox"/>
	Skid Rig <input type="checkbox"/>	None <input checked="" type="checkbox"/>

Modifications/Exceptions: Minimum requirement include sleeved shirt and long pants, safety shoes, surgical style gloves, and safety glasses. Hard hats and hearing protection will be worn when working near operating equipment or when required by the SSO. Reflective vests will be worn when working in areas exposed to traffic hazards. Tyvek coveralls will be used when handling saturated soils or where similar hazards exist.

VI. Chemicals of Concern	Action Level(s)	Response Measures
VOC; SVOC; Metals; PCBs		
Total particulates	<u>>2.0 mg/kg (visible dust)</u>	<u>Wet area for dust control or</u>
Any sustained PID readings	<u>Check with Vinyl chloride tubes</u>	
If positive for Vinyl chloride	<u>Any detection</u>	<u>Retreat to safe area and return when clear</u>

VI. Additional Safety Equipment/Procedures

Hard-hat.....	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Hearing Protection (Plugs/Muffs) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Safety Glasses	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Safety belt/harness <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Chemical/splash goggles.....	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Radio <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Splash Shield.....	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Barricades <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Splash suits/coveralls	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Gloves (Type - Surgical Style) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Steel toe Work shoes or boots	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Work/rest regimen <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Modifications/Exceptions: Reflective vests for high traffic areas. Tyvek coverall if there is a potential for soiling work clothes.

VII. Procedure review with permit acceptors	Yes	NA	Emergency alarms	Yes	NA
Safety shower/eyewash (Location & Use)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Evacuation routes	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Procedure for safe job completion	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Assembly points	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Contractor tools/equipment/PPE inspected	<input type="checkbox"/>	<input checked="" type="checkbox"/>			

VIII. Site Preparation	Yes	No	NA
Utility Locating and Excavation Clearance completed	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Vehicle and Foot Traffic Routes Cleared and Established	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Physical Hazards Barricaded and Isolated	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Emergency Equipment Staged	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

IX. Additional Permits required (Hot work, confined space entry, excavation etc.) Yes No
If yes, complete permit required or contact Health Sciences, Pittsburgh Office

X. Special instructions, precautions: Minimize contact with potentially contaminated media (soils, groundwater etc.). Use safe work practices discussed in the HASP and Guidance Manual. Wash hands and face before performing any hand to mouth activities.

Permit Issued by: _____ Permit Accepted by: _____

**SAFE WORK PERMIT FOR
TEST PIT EXCAVATION
IHDIV-NSWC SITE 42
INDIAN HEAD, MARYLAND**

Permit No. _____ Date: _____ Time: From _____ to _____

SECTION I: General Job Scope

- I. Work limited to the following (description, area, equipment used): Test Pit Excavation Site 42 – Olsen Road Landfill
- II. Required Monitoring Instruments: FID or PID (10.6 eV lamp source), 0.5/b Vinyl Chloride colorimetric tubes
- III. Field Crew: _____
- IV. On-site Inspection conducted Yes No Initials of Inspector TtNUS

SECTION II: General Safety Requirements (To be filled in by permit issuer)

- V. Protective equipment required Respiratory equipment required
- | | | | | |
|---|----------------------------------|---------------|----------------|--------------------------|
| Level D <input checked="" type="checkbox"/> | Level B <input type="checkbox"/> | Full face APR | Escape Pack | <input type="checkbox"/> |
| Level C <input type="checkbox"/> | Level A <input type="checkbox"/> | Half face APR | SCBA | <input type="checkbox"/> |
| Detailed on Reverse | | SAR | Bottle Trailer | <input type="checkbox"/> |
| | | Skid Rig | None | <input type="checkbox"/> |

Level C Minimum Requirements: Sleeved shirt and long pants, safety footwear, and nitrile gloves. Safety glasses, hard hat, and hearing protection will be worn when working near or sampling in the vicinity of the back-hoe.

VI. Chemicals of Concern	Action Level(s)	Response Measures
VOC; SVOC; Metals; PCBs		
Total particulates	>2.0 mg/kg (visible dust)	Wet area for dust control or
Any sustained PID readings	check with Vinyl chloride tubes	
If positive for Vinyl chloride	Any detection	Retreat to safe area and return when clear

VII. Additional Safety Equipment/Procedures

- | | | |
|-------------------------------|---|--|
| Hard-hat..... | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Hearing Protection (Plugs/Muffs) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| Safety Glasses | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Safety belt/harness <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| Chemical/splash goggles..... | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | Radio <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| Splash Shield..... | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | Barricades <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| Splash suits/coveralls | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Gloves (Type - Nitrile) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| Steel toe work shoes or boots | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Work/warming regimen <input type="checkbox"/> Yes <input type="checkbox"/> No |

Modifications/Exceptions: Chemical resistant overboots. PVC or PE coated Tyvek if saturation or work clothes may occur.

- VIII. Procedure review with permit acceptors
- | | | | |
|--|---|-------------------------|---|
| Safety shower/eyewash (Location & Use) | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> NA | Emergency alarms | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> NA |
| Procedure for safe job completion | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> NA | Evacuation routes | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> NA |
| Contractor tools/equipment/PPE inspected | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> NA | Assembly points..... | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> NA |

X. Equipment Preparation

- | | |
|---|---|
| Utility Locating and Excavation Clearance completed..... | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> NA |
| Vehicle and Foot Traffic Routes Cleared and Established | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> NA |
| Physical Hazards Barricaded and Isolated..... | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> NA |
| Emergency Equipment Staged..... | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> NA |

- XI. Additional Permits required (Hot work, confined space entry)..... Yes No

If yes, complete permit required or contact Health Sciences, Pittsburgh Office

XII. Special instructions, precautions: Test pits will be excavated in accordance with 29 CFR 1926.650-.652. Site personnel will not be permitted to enter any excavation. Equipment, personnel, and machinery will be kept away from the edges of open excavations (> 3 feet). Open excavations will be barricaded. If any intact containers or drums are uncovered as a result of excavation activities the FOL will initiate drum removal activities or suspend operations depending on circumstances.

Permit Issued by: _____ Permit Accepted by: _____

**SAFE WORK PERMIT FOR
TOOL EXCAVATION
IHDIV-NSWC SITES 32 & 34
INDIAN HEAD, MARYLAND**

Permit No. _____ Date: _____ Time: From _____ to _____

SECTION I: General Job Scope

- I. Work limited to the following (description, area, equipment used): Tool Excavation at the Tool Burial Areas
- II. Required Monitoring Instruments: FID or PID (10.6 eV lamp source) as a precautionary measure
- III. Field Crew: _____
- IV. On-site Inspection conducted Yes No Initials of Inspector TINUS

SECTION II: General Safety Requirements (To be filled in by permit issuer)

- | | | |
|--|--|---|
| V. Protective equipment required | Respiratory equipment required | |
| Level D <input checked="" type="checkbox"/> Level B <input type="checkbox"/> | Full face APR <input type="checkbox"/> | Escape Pack <input type="checkbox"/> |
| Level C <input type="checkbox"/> Level A <input type="checkbox"/> | Half face APR <input type="checkbox"/> | SCBA <input type="checkbox"/> |
| Detailed on Reverse | SAR <input type="checkbox"/> | Bottle Trailer <input type="checkbox"/> |
| | Skid Rig <input type="checkbox"/> | None <input type="checkbox"/> |

Level C Minimum Requirements: Sleeved shirt and long pants, safety footwear, and nitrile gloves. Safety glasses, hard hat, and hearing protection will be worn when working near or sampling in the vicinity of the back-hoe.

VI. Chemicals of Concern	Action Level(s)	Response Measures
Metals		
Total particulates	>2.0 mg/kg (visible dust)	Wet area for dust control or
Any sustained PID readings	>background/BZ/ >1 minute duration	Retreat to safe area

VII. Additional Safety Equipment/Procedures

- | | | |
|-------------------------------|---|--|
| Hard-hat..... | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Hearing Protection (Plugs/Muffs) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| Safety Glasses | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Safety belt/harness <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| Chemical/splash goggles..... | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | Radio <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| Splash Shield..... | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | Barricades <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| Splash suits/coveralls | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Gloves (Type - Nitrile) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| Steel toe work shoes or boots | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Work/warming regimen <input type="checkbox"/> Yes <input type="checkbox"/> No |

Modifications/Exceptions: Chemical resistant overboots. PVC or PE coated Tyvek if saturation or work clothes may occur.

- | | | | |
|--|---|-------------------------|---|
| VIII. Procedure review with permit acceptors | Yes <input type="checkbox"/> NA <input type="checkbox"/> | Emergency alarms | Yes <input checked="" type="checkbox"/> NA <input type="checkbox"/> |
| Safety shower/eyewash (Location & Use) | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> NA | Evacuation routes | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> NA |
| Procedure for safe job completion | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> NA | Assembly points..... | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> NA |
| Contractor tools/equipment/PPE inspected | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> NA | | |

X. Equipment Preparation

- | | |
|---|---|
| Utility Locating and Excavation Clearance completed..... | Yes <input checked="" type="checkbox"/> NA <input type="checkbox"/> |
| Vehicle and Foot Traffic Routes Cleared and Established | Yes <input checked="" type="checkbox"/> NA <input type="checkbox"/> |
| Physical Hazards Barricaded and Isolated..... | Yes <input checked="" type="checkbox"/> NA <input type="checkbox"/> |
| Emergency Equipment Staged..... | Yes <input checked="" type="checkbox"/> NA <input type="checkbox"/> |

- XI. Additional Permits required (Hot work, confined space entry)..... Yes No
If yes, complete permit required or contact Health Sciences, Pittsburgh Office

XII. Special instructions, precautions: Tool excavation will be in accordance with 29 CFR 1926.650-.652. Site personnel will not be permitted to enter any excavation. Equipment, personnel, and machinery will be kept away from the edges of open excavations (> 3 feet). Open excavations will be barricaded. If any intact containers or drums are uncovered as a result of excavation activities the FOL will initiate drum removal activities or suspend operations depending on circumstances.

Permit Issued by: _____ Permit Accepted by: _____

**SAFE WORK PERMIT FOR
MOBILIZATION/DEMobilIZATION
INDIAN HEAD DIVISION, NAVAL SURFACE WARFARE CENTER
INDIAN HEAD, MARYLAND**

Permit No. _____ Date: _____ Time: From _____ to _____

SECTION I: General Job Scope

- I. Work limited to the following (description, area, equipment used): Mobilization/Demobilization
- II. Names: _____
- III. Onsite Inspection conducted Yes No Initials of Inspector TtNUS

SECTION II: General Safety Requirements (To be filled in by permit issuer)

- IV. Protective equipment required Respiratory equipment required
- | | | | | | |
|---|----------------------------------|---------------|--------------------------|----------------|-------------------------------------|
| Level D <input checked="" type="checkbox"/> | Level B <input type="checkbox"/> | Full face APR | <input type="checkbox"/> | Escape Pack | <input type="checkbox"/> |
| Level C <input type="checkbox"/> | Level A <input type="checkbox"/> | Half face APR | <input type="checkbox"/> | SCBA | <input type="checkbox"/> |
| | | SAR | <input type="checkbox"/> | Bottle Trailer | <input type="checkbox"/> |
| | | Skid Rig | <input type="checkbox"/> | None | <input checked="" type="checkbox"/> |

Modifications/Exceptions: Sleeved shirts and long pants, safety footwear.

V. Chemicals of Concern	Action Level(s)	Response Measures
<u>None anticipated given the nature of activities and limited contact w/media</u>	<u>None</u>	
_____	_____	_____
_____	_____	_____

VI. Additional Safety Equipment/Procedures

- | | | | |
|-------------------------------------|---|--|---|
| Hardhat | <input type="checkbox"/> Yes <input type="checkbox"/> No | Hearing Protection (Plugs/Muffs) | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Safety Glasses | <input type="checkbox"/> Yes <input type="checkbox"/> No | Safety belt/harness | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| Chemical/splash goggles | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | Radio | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| Splash Shield | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | Barricades..... | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| Splash suit/coveralls (Type) | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | Gloves (leather/cotton) | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| Steel toe workboots..... | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Work/rest regimen | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| Chemical Protective Over-boots..... | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | |

Modifications/Exceptions: Safety glasses, hardhat, reflective vests, and hearing protection when required.

- | | | | | | |
|--|--------------------------|-------------------------------------|-------------------------|-------------------------------------|--------------------------|
| VII. Procedure review with permit acceptors | Yes | NA | Emergency alarms | Yes | NA |
| Safety shower/eyewash (Location & Use) | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Evacuation routes | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Procedure for safe job completion | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Assembly points..... | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Contractor tools/equipment inspected..... | <input type="checkbox"/> | <input checked="" type="checkbox"/> | | | |

- | | | | |
|--|--------------------------|--------------------------|-------------------------------------|
| VII. Site Preparation | Yes | No | NA |
| Utility Locating and Excavation Clearance completed | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Vehicle and Foot Traffic Routes Cleared and Established..... | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Physical Hazards Barricaded and Isolated | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Emergency Equipment Staged | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

- VIII. Additional Permits required (Hot work, confined space entry, excavation, etc.). Yes No
- If yes, See SSO for appropriate permit*

IX. Special instructions, precautions: _____

Permit Issued by: _____ Permit Accepted by: _____

**SAFE WORK PERMIT FOR
IDW MANAGEMENT AND MOVING DRUMS
IHDIV-NSWC
INDIAN HEAD, MARYLAND**

Permit No. _____ Date: _____ Time: From _____ to _____

SECTION I: General Job Scope

- I. Work limited to the following (description, area, equipment used): IDW management and moving drums
- II. Required Monitoring Instruments: PID with 10.6eV (or higher) lamp detect presence of VOCs
- III. Field Crew: _____
- IV. On-site inspection conducted Yes No Initials of Inspector TtNUS

SECTION II: General Safety Requirements (To be filled in by permit issuer)

- | | | |
|--|--|---|
| <p>IV. Protective equipment required</p> <p>Level D <input checked="" type="checkbox"/> Level B <input type="checkbox"/></p> <p>Level C <input type="checkbox"/> Level A <input type="checkbox"/></p> <p>Detailed on Reverse _____</p> | <p>Respiratory equipment required</p> <p>Full face APR <input type="checkbox"/></p> <p>Half face APR <input type="checkbox"/></p> <p>SAR <input type="checkbox"/></p> <p>Skid Rig <input type="checkbox"/></p> | <p>Escape Pack <input type="checkbox"/></p> <p>Airline/SCBA <input type="checkbox"/></p> <p>Bottle trailer <input type="checkbox"/></p> <p>None <input checked="" type="checkbox"/></p> |
|--|--|---|

Modifications/Exceptions: Minimum requirement include sleeved shirt and long pants, safety shoes, hardhat, cotton/leather outer gloves with surgical-style inner gloves, impermeable boot covers.

V. Chemicals of Concern	Action Level(s)	Response Measures
<u>None anticipated</u>	<u>n/a</u>	<u>n/a</u>
_____	_____	_____
_____	_____	_____

- VI. Additional Safety Equipment/Procedures
- | | | |
|-------------------------------|---|--|
| Hard-hat..... | <input type="checkbox"/> Yes <input type="checkbox"/> No | Hearing Protection (Plugs/Muffs) <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Safety Glasses | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Safety belt/harness <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| Chemical/splash goggles..... | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | Radio <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| Splash Shield..... | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | Barricades <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| Splash suits/coveralls | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Gloves (Type – <u>cotton/leather</u>) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| Steel toe Work shoes or boots | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Work/rest regimen <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
- Modifications/Exceptions: Tyvek coverall if there is a potential for soiling clothes.

- VII. Procedure review with permit acceptors
- | | | | | | |
|--|--------------------------|-------------------------------------|-------------------------|-------------------------------------|--------------------------|
| Safety shower/eyewash (Location & Use) | Yes | NA | Emergency alarms | Yes | NA |
| Procedure for safe job completion | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Evacuation routes | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Contractor tools/equipment/PPE inspected | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Assembly points | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

- VIII. Site Preparation
- | | | | |
|---|--------------------------|--------------------------|-------------------------------------|
| Utility Locating and Excavation Clearance completed | Yes | No | NA |
| Vehicle and Foot Traffic Routes Cleared and Established | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Physical Hazards Barricaded and Isolated | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Emergency Equipment Staged | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

- IX. Additional Permits required (Hot work, confined space entry, excavation etc.)..... Yes No
If yes, complete permit required or contact Health Sciences, Pittsburgh Office

X. Special instructions, precautions: Use proper lifting techniques when moving drums. Utilize appropriate hand carts and use machinery for lifting purposes.

Permit Issued by: _____ Permit Accepted by: _____

**SAFE WORK PERMIT
DECONTAMINATION ACTIVITIES
INDIAN HEAD DIVISION, NAVAL SURFACE WARFARE CENTER
INDIAN HEAD, MARYLAND**

Permit No. _____ Date: _____ Time: From _____ to _____

SECTION I: General Job Scope

- I. Work limited to the following (description, area, equipment used): Decontamination of sampling equipment and machinery (i.e., drill rigs, augers). Brushes and spray bottles will be used to decon small sampling equipment. Pressure washers or steam cleaning units will be used to decon the augers and drilling.
- II. Required Monitoring Instrument(s): PID with 10.6 eV or higher lamp source (used to screen equipment)
- III. Field Crew: _____
- IV. On-site Inspection conducted Yes No Initials of Inspector TtNUS

SECTION II: General Safety Requirements (To be filled in by permit issuer)

- | | |
|--|--|
| <p>IV. Protective equipment required</p> <p>Level D <input checked="" type="checkbox"/> Level B <input type="checkbox"/>
 Level C <input type="checkbox"/> Level A <input type="checkbox"/>
 Detailed on Reverse</p> | <p>Respiratory equipment required</p> <p>Full face APR <input type="checkbox"/> Escape Pack <input type="checkbox"/>
 Half face APR <input type="checkbox"/> SCBA <input type="checkbox"/>
 SAR <input type="checkbox"/> Bottle Trailer <input type="checkbox"/>
 Skid Rig <input type="checkbox"/> None <input checked="" type="checkbox"/></p> |
|--|--|

Modifications/Exceptions: Minimum requirement include sleeved shirt and long pants, safety glasses, safety footwear, and nitrile gloves. When using pressure washers, steam cleaners field crews will wear hearing protection, and face shields.

V. Chemicals of Concern	Action Level(s)	Response Measures
Potential contaminants	None	None
<u>include various</u>	_____	_____
<u>decontamination fluids</u>	_____	_____

- | | | | |
|--|---|----------------------------------|---|
| VI. Additional Safety Equipment/Procedures | | | |
| Hard-hat..... | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Hearing Protection (Plugs/Muffs) | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| Safety Glasses | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Safety belt/harness | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| Chemical/splash goggles..... | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | Radio | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| Splash Shield..... | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Barricades | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| Splash suits/coveralls | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Gloves (Type - Nitrile) | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| Steel toe Work shoes or boots | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Work/rest regimen | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |

Modifications/Exceptions: PVC rain suits or PE or PVC coated Tyvek for protection against splashes and overspray. Chemical resistant boot covers if excessive liquids are generated or protected footwear.

- | | | | |
|---|-------------------------------------|-------------------------------------|------------------------|
| VII. Procedure review with permit acceptors | Yes | NA | |
| Safety shower/eyewash (Location & Use) | <input checked="" type="checkbox"/> | <input type="checkbox"/> | Emergency alarms..... |
| Procedure for safe job completion..... | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Evacuation routes..... |
| Contractor tools/equipment/PPE inspected..... | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Assembly points..... |

- | | | | |
|---|--------------------------|--------------------------|-------------------------------------|
| VIII. Site Preparation | Yes | No | NA |
| Utility Locating and Excavation Clearance completed..... | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Vehicle and Foot Traffic Routes Cleared and Established | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Physical Hazards Barricaded and Isolated..... | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Emergency Equipment Staged..... | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

- IX. Additional Permits required (Hot work, confined space entry, excavation etc.) Yes No
If yes, complete permit required or contact Health Sciences, Pittsburgh Office

- X. Special instructions, precautions: Chemical hazards with decontamination because of use of fluids such as isopropyl alcohol, methanol, etc. To minimize the potential for exposure, site personnel will use PPE and prevent contact with potentially contaminated equipment. Refer to the manufacturer's MSDS regarding PPE, handling, storage, and first-aid measures related to decontamination fluids.

Permit Issued by: _____ Permit Accepted by: _____

ATTACHMENT VI

OSHA POSTER

You Have a Right to a Safe and Healthful Workplace.

IT'S THE LAW!

- You have the right to notify your employer or OSHA about workplace hazards. You may ask OSHA to keep your name confidential.
- You have the right to request an OSHA inspection if you believe that there are unsafe and unhealthful conditions in your workplace. You or your representative may participate in the inspection.
- You can file a complaint with OSHA within 30 days of discrimination by your employer for making safety and health complaints or for exercising your rights under the *OSH Act*.
- You have a right to see OSHA citations issued to your employer. Your employer must post the citations at or near the place of the alleged violation.
- Your employer must correct workplace hazards by the date indicated on the citation and must certify that these hazards have been reduced or eliminated.
- You have the right to copies of your medical records or records of your exposure to toxic and harmful substances or conditions.
- Your employer must post this notice in your workplace.



The *Occupational Safety and Health Act of 1970 (OSH Act)*, P.L. 91-596, assures safe and healthful working conditions for working men and women throughout the Nation. The Occupational Safety and Health Administration, in the U.S. Department of Labor, has the primary responsibility for administering the *OSH Act*. The rights listed here may vary depending on the particular circumstances. To file a complaint, report an emergency, or seek OSHA advice, assistance, or products, call 1-800-321-OSHA or your nearest OSHA office: • Atlanta (404) 562-2300 • Boston (617) 565-9860 • Chicago (312) 353-2220 • Dallas (214) 767-4731 • Denver (303) 844-1600 • Kansas City (816) 426-5861 • New York (212) 337-2378 • Philadelphia (215) 861-4900 • San Francisco (415) 975-4310 • Seattle (206) 553-5930. Teletypewriter (TTY) number is 1-877-889-5627. To file a complaint online or obtain more information on OSHA federal and state programs, visit OSHA's website at www.osha.gov. If your workplace is in a state operating under an OSHA-approved plan, your employer must post the required state equivalent of this poster.

1-800-321-OSHA

www.osha.gov

U.S. Department of Labor • Occupational Safety and Health Administration • OSHA 3165

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