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HEALTH AND SAFETY PLAN NORTHWEST LANDFILL/BURNING PIT FIELD  
INVESTIGATION SITE 3 NCBC GULFPORT MS  
6/1/2006  
TETRA TECH NUS

# Comprehensive Long-term Environmental Action Navy

CONTRACT NUMBER N62467-04-D-0055



## HEALTH AND SAFETY PLAN FOR SITE 3 – NORTHWEST LANDFILL/BURNING PIT FIELD INVESTIGATION

NAVAL CONSTRUCTION BATTALION CENTER  
GULFPORT  
GULFPORT, MISSISSIPPI

Contract Task Order 0041

June 2006



Southeast

2155 Eagle Drive

North Charleston, South Carolina 29406

**HEALTH AND SAFETY PLAN  
FOR  
SITE 3 – NORTHWEST LANDFILL/BURNING PIT  
FIELD INVESTIGATION  
AT THE  
NAVAL CONSTRUCTION BATTALION CENTER GULFPORT  
GULFPORT, MISSISSIPPI**

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

**Submitted to:  
Naval Facilities Engineering Command  
Southeast  
2155 Eagle Drive  
North Charleston, South Carolina 29406**

**Submitted by:  
TETRA TECH NUS  
661 Andersen Drive Foster Plaza 7  
Pittsburgh, Pennsylvania 15220**

**CONTRACT NUMBER N62467-04-D-0055  
CONTRACT TASK ORDER 041**

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**PREPARED UNDER THE SUPERVISION OF:**



**ROBERT FISHER  
TASK ORDER MANAGER  
TETRA TECH NUS  
TALLAHASSEE, FLORIDA**

**APPROVED FOR SUBMITTAL BY:**



**MATTHEW M. SOLTIS, CIH, CSP  
CLEAN HEALTH AND SAFETY MANAGER  
TETRA TECH NUS  
PITTSBURGH, PENNSYLVANIA**

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- II STANDARD OPERATING PROCEDURE FOR UTILITY LOCATING AND EXCAVATION CLEARANCE
- III SAFE WORK PERMITS
- IV MEDICAL DATA SHEET
- V EQUIPMENT INSPECTION

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## 1.0 INTRODUCTION

**Authorization:** This Health and Safety Plan (HASP) and the work described within are completed under the authorization of:

**Contract:** Comprehensive Long-Term Environmental Action Navy (CLEAN IV)

**Contract Number:** N62467-04-D-0055

**Contract Task Order:** 041

**Application:** This Health and Safety Plan (HASP) has been written to encompass site activities that are to be conducted at the NCBC located in Gulfport, Mississippi. Activities to be conducted as per this HASP are defined in detail in Section 4.0.

**Compliance:** The elements of this HASP are intended to be in compliance with the requirements established by:

- OSHA 29 CFR 1910.120, "Hazardous Waste Operations and Emergency Response" (HAZWOPER)
- Applicable sections of 29 CFR 1926 "Safety and Health Regulations For Construction."
- Tetra Tech NUS Health and Safety Program

This HASP must be accompanied by the Tetra Tech NUS, Inc. Health and Safety Guidance Manual (TtNUS HSGM). The Guidance Manual provides additional information on program support, standard operating procedures, and safe work practices.

**Modifications/Changes:** The following conditions are considered sufficient basis review and possible changes to this document:

- The addition or modification of activities outside of those specified in Section 4.0, Scope of Work.
- New information becomes available through the course of the investigation or from outside sources.

Changes to this HASP will be requested through the Task Order Manager (TOM) to the Tetra Tech NUS Health and Safety Manager (HSM). It is the responsibility of the TOM to notify affected personnel of changes to this HASP. Changes to the HASP will be documented using a Document Review Record.

## 1.1 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 will exercise the primary responsibility for on-site health and safety. These persons will be the primary points of contact for any questions regarding the safety and health procedures and the selected control measures that are to be implemented for on-site activities.

- The **TtNUS TOM** is responsible for the overall direction of health and safety for this project.
- The **Project Health and Safety Officer (PHSO)** is responsible for developing this HASP in accordance with applicable OSHA regulations. Specific responsibilities include:
  - i. Providing information regarding site contaminants and physical hazards associated with the site and tasks to be conducted.
  - ii. Establishing air monitoring and decontamination procedures.
  - iii. Assigning personal protective equipment based on task and potential hazards.
  - iv. Determining emergency action/response procedures and emergency contacts.
  - v. Stipulating training and medical surveillance requirements.
  - vi. Providing standard work practices to minimize potential injuries and exposures associated with hazardous waste work.
  - vii. Modifying this HASP, as it becomes necessary.
- The **TtNUS Field Operations Leader (FOL)** is responsible for implementation of the 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 **Site Safety Officer (SSO)** supports site activities by advising the FOL on the aspects of health and safety on-site. In this capacity the SSO:
  - i. Coordinates health and safety activities with the FOL.
  - ii. Selects, applies, inspects, and maintains personal protective equipment.
  - iii. Establishes work zones and control points in areas of operation.
  - iv. Implements air monitoring program for on-site activities.
  - v. Verifies training and medical clearance of on-site personnel status in relation to site activities.
  - vi. Implements Hazard Communication, Respiratory Protection Programs, and other associated health and safety programs as they may apply to site activities.
  - vii. Coordinates TtNUS emergency actions with the facilities emergency services.
  - viii. Provides site-specific training for on-site personnel.
  - ix. Investigates accidents and injuries (see Attachment I - Illness/Injury Procedure and Report Form)

- x. Provides input to the PHSO regarding the need to modify, this HASP, or applicable health and safety associated documents as per site-specific requirements.
- Compliance with the requirements stipulated in this HASP is monitored by the SSO and coordinated through the TtNUS CLEAN HSM.

**Note:** In some cases one person may be designated responsibilities for more than one position. For example, the FOL may also be responsible for the SSO duties. This action will be performed only as credentials, experience, and availability permits.

## 1.2 SITE INFORMATION AND PERSONNEL ASSIGNMENTS

**Site Name:** Naval Construction Battalion Center Gulfport

**Site Address:** 5200 NCBC 2<sup>nd</sup> Street  
Gulfport, Mississippi 39501-5000

**Facility Contacts:** John Gallagher **Facility Phone Number:** (228) 822-3134  
Kenny Peterman

**Purpose of Site Visit:** This activity is divided into a multi-task operation (see Section 4.0).

### **Project Team:**

<b>TtNUS Personnel:</b>	<b>Discipline/Tasks Assigned:</b>	<b>Phone Number:</b>
<u>Robert Fisher</u>	<u>Task Order Manager (TOM)</u>	<u>850/385-9866 Ext. 20</u>
<u>Matthew M. Soltis, CIH, CSP</u>	<u>CLEAN Health and Safety Manager (HSM)</u>	<u>412/921-8912</u>
<u>Clyde Snyder</u>	<u>Project Health and Safety Officer (PHSO)</u>	<u>412/921-8904</u>
<u>Jason Bourgeois</u>	<u>Field Operations Leader (FOL)</u>	<u>850/385-9866 Ext. 23</u>
<u>TBD</u>	<u>Site Safety Officer (SSO)</u>	<u></u>
<u>Tom Patton</u>	<u>Equipment Manager</u>	<u>412/262-4583</u>

<b>Non-TtNUS Personnel</b>	<b>Affiliation/Discipline/Tasks Assigned</b>	
<u>WL Gore</u>	<u>Analytical Laboratory</u>	<u>(410) 392-7600</u>
<u>FedEx</u>	<u>Parcel/Sample Shipment</u>	<u>(800) 463-3339</u>
<u>DPT Contractor</u>	<u>M&amp;W Drilling</u>	<u>(865)-690-0128</u>
<u>Mobile Lab</u>	<u>KB Labs, Inc.</u>	<u>(352)-367-0073</u>

Hazard Assessments (for purposes of 29 CFR 1910.132) and HASP preparation conducted by:  
Clyde Snyder

TBD - To Be Determined

## **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. In the event of an emergency that cannot be handled by onsite personnel, site personnel will be evacuated 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. Therefore, TtNUS will not provide emergency response support for significant emergency events 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 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 operations, a factor which ensures adequate emergency response time. This emergency action plan conforms to the requirements of OSHA Standard 29 CFR 1910.38(a), as allowed in OSHA 29 CFR 1910.120(l)(1)(ii).

In the event of an emergency, TtNUS personnel will, provide necessary initial response measures for incidents such as:

- Incipient fire-fighting support and prevention
- Incipient spill control and containment measures and prevention
- Removal of personnel from emergency situations
- Provision of initial medical support for injury/illness requiring only first-aid level support
- Provision of site control and security measures as necessary

### **2.2 EMERGENCY PLANNING**

Injuries/illnesses resulting from exposure to chemical or physical contact with hazards and fire are the most probable emergencies that could occur during site activities. To minimize or eliminate these potential emergency situations, emergency planning activities will include the following:

- Coordinating response actions with NCBC Gulfport Emergency Services personnel to ensure that TtNUS emergency action activities are compatible with existing facility emergency response procedures.

- 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 (for substances used onsite), with Material Safety Data Sheets.
  - Onsite personnel medical records (Medical Data Sheets).
  - A logbook identifying personnel onsite each day.
  - Emergency notification phone numbers in site vehicles
- 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.

It is the responsibility of the TtNUS FOL to ensure that this information is available and present at the site.

## **2.3 EMERGENCY RECOGNITION AND PREVENTION**

### **2.3.1 Recognition**

It is anticipated that foreseeable emergency situations that may be encountered during site activities will be recognizable by worker observation or through air monitoring equipment readings. Through site-specific training, site personnel will have knowledge regarding the signs and symptoms of overexposure to contaminants of concern. This knowledge will assist site personnel in identifying potential emergency situations and to alert personnel of potential hazards. Many of the potential hazards and recommended control measures are discussed in Sections 5.0 and 6.0 of this document. Additionally, early recognition will be supported by periodic site surveys to eliminate conditions that may predispose site personnel or property to an emergency. Site surveys will be conducted at least once a week during the initiation of this effort.

The above actions will provide early recognition for potential emergency situations. Should an incident take place, TtNUS will take defensive and offensive measures to control the situation. However, if the FOL and/or the SSO determine that an incident has progressed to a serious situation; TtNUS will withdraw, and notify appropriate response agencies.

### **2.3.2 Prevention**

TtNUS will minimize the potential for emergencies by following the Health and Safety Guidance Manual and ensuring compliance with the HASP and applicable OSHA regulations. In the event that an activity or operation is covered by more than one of these documents, the most stringent requirement shall apply.

## **2.4 SAFE DISTANCES AND PLACES OF REFUGE**

In the event that the site must be evacuated, personnel will immediately stop activities and report to the TtNUS FOL at the safe refuge area. Safe places of refuge will be determined prior to commencement of site activities and will be conveyed to personnel as part of the daily safety meeting conducted each morning. Upon reporting to the refuge location, personnel will remain there until directed otherwise by the FOL or the on-site Incident Commander of the Emergency Response Team. The FOL or the SSO will take a head count at this location to confirm the location of site personnel. The site logbook will be used to take and record the head count. Ideally, the places of refuge should offer a point for communication.

## **2.5 EVACUATION ROUTES AND PROCEDURES**

An evacuation will be initiated whenever recommended hazard controls are insufficient to protect the health, safety, or welfare of site workers. Once an evacuation is initiated, personnel will proceed immediately to the designated place of refuge, unless doing so would further jeopardize the welfare of workers. In such event, personnel will proceed to a designated alternate location (to be identified) and remain there until further notification from the FOL. The use of these locations as assembly points provides communication and a direction point for emergency services.

Evacuation procedures will be discussed prior to the initiation of work at the site. This shall include identifying primary and secondary evacuation routes and assembly points. Evacuation routes from the site 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) will influence the designation of evacuation routes. As a result, multiple assembly points will be selected at NCBC Gulfport, and in the event of an emergency, field personnel will proceed to these points by the most direct route possible without further endangering themselves.

## **2.6 EMERGENCY ALERTING AND ACTION/RESPONSE PROCEDURES**

TtNUS personnel will be working in close proximity to each other at NCBC Gulfport. As a result, hand signals, voice commands, and line of site communication will be sufficient to alert site personnel of an emergency. When project tasks are performed simultaneously on different sites, vehicle horns will be used to communicate emergency situations.

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

- Initiate the evacuation via hand signals, voice commands, line of site communication, or vehicle horns. The following signals shall be utilized when communication via vehicle horn is necessary:

HELP	three short blasts	■ ■ ■
EVACUATION	three long blasts	■ ■ ■

- Report to the designated refuge point.
- Once non-essential personnel are evacuated, appropriate response procedures will be enacted to control the situation.
- Describe to the FOL (FOL will serve as the Incident Coordinator) pertinent incident details.

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

Dial 911 and call other 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.

## **2.7 EMERGENCY CONTACTS**

Prior to performing work at the site, personnel will be briefed on the emergency procedures to be followed in the event of an incident. A mobile phone shall be available on site. Table 2-1 provides a list of emergency contacts and their corresponding telephone numbers. This table must be posted on site where it is readily available to site personnel.

**TABLE 2-1  
EMERGENCY REFERENCE  
NCBC GULFPORT**

<b>AGENCY</b>	<b>TELEPHONE</b>
<b>EMERGENCY</b>	<b>9-1-1</b>
Police	<b>(228) 871-2222</b>
Fire/Hazardous Materials Release	<b>(228) 871-2333</b>
Ambulance Services	<b>(228) 871-2444</b>
Base Contact, Mr. Gordon Crane Pager	<b>(228) 871-2485</b> 1(800) 343-3472
Memorial Hospital at Gulfport 4500 13 <sup>th</sup> Street Gulfport, Mississippi 39501-2569	(228) 867-4000
Task Order Manager Robert Fisher, P.E.	(850) 510-2743
CLEAN Health and Safety Manager Matthew Soltis, CIH, CSP	(412) 921-8912
Project Health and Safety Officer Clyde Snyder	(412) 921-8904
Utilities (On Base) (Utility Clearances and Emergencies) Public Works Maintenance Division	(228) 871-2244
Utilities (Public Utility Locating Service) Mississippi One Call System Inc.	(800) 227-6477
Chemtrec	(800) 424-9300
National Response Center	(800) 424-8802
Mississippi Regional Poison Control Center	(800) 222-1222
Tetra Tech NUS, Tallahassee Office	(850) 359-9899
Tetra Tech NUS, Pittsburgh Office	(412) 921-7090
Tetra Tech NUS, Gulfport, Mississippi Office	(288) 575-6287

## 2.8 EMERGENCY ROUTE TO HOSPITAL

Directions from NCBC Gulfport:

From Site 3 go to the intersection of 4<sup>th</sup> Street and Colby Avenue go south on Colby.

Start at:

Proceed south on Colby Ave. to Engram Drive

Turn Left on Marvin Shields Blvd. Proceed due east to Broad Ave..

Turn Right on Broad Avenue.

Turn Left on 13<sup>th</sup> Street

End at:

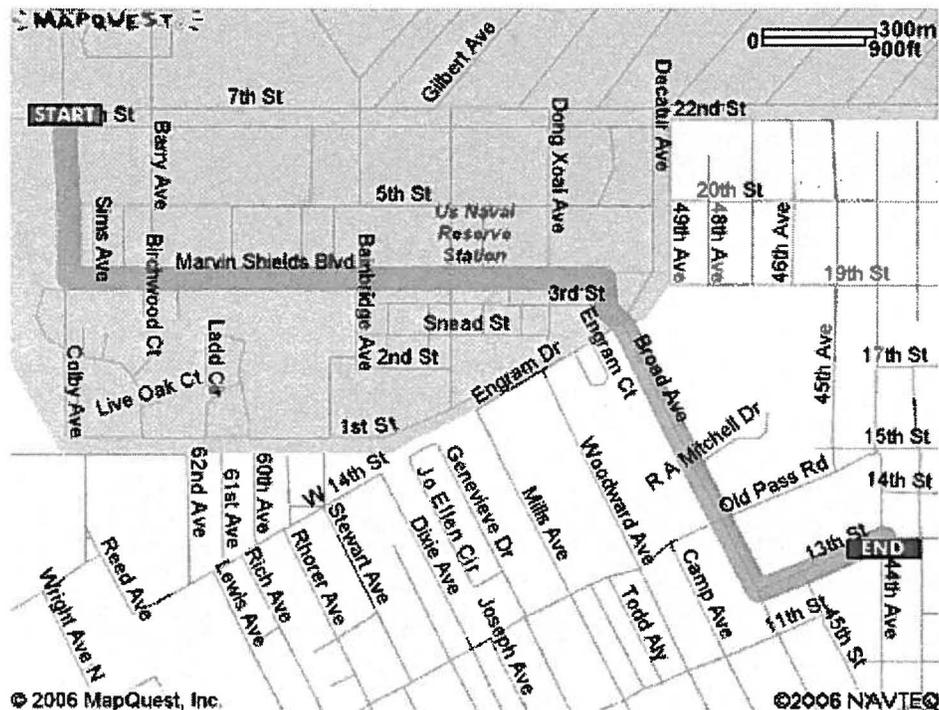
Memorial Hospital at Gulfport

4500 13<sup>th</sup> Street

Gulfport, Mississippi 39501-2569

Figure 2-1

Route to Hospital



## **2.9 DECONTAMINATION PROCEDURES/EMERGENCY MEDICAL TREATMENT**

During a site evacuation, decontamination procedures will be performed only if doing so does not further jeopardize the welfare of site workers. Decontamination will be postponed if the action that initiates an evacuation would further endanger the lives of workers. However, a situation that would require workers to evacuate without first performing decontamination procedures is unlikely to occur at this site. If the emergency involves personnel to exposures to chemicals, follow the steps provided in Figure 2-2.

## **2.10 INJURY/ILLNESS REPORTING**

If TtNUS personnel are injured or develop an illness as a result of working on site, the TtNUS "Injury/Illness Procedure" (Attachment I) must be followed. Following this procedure is necessary for documenting the information obtained at the time of the incident. Also, as soon as possible the Navy Contact must be informed of incidents or accidents that require medical attention.

Pertinent information regarding allergies to medications or other special conditions will be provided to medical services personnel. If an exposure to hazardous materials has occurred, provide information on the chemical, physical, and toxicological properties of the subject chemical(s) to medical service personnel.

## **2.11 PPE AND EMERGENCY EQUIPMENT**

A first-aid kit, eye wash units (or bottles of disposable eyewash solution) and fire extinguishers (strategically placed) 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 as well as in each site vehicle. At least one first aid kit supplied with equipment to protect against blood borne pathogens will also be available on site. Personnel identified within the field crew with blood borne pathogen and first-aid training will be the only personnel permitted to offer first-aid assistance.

## **FIGURE 2-2 POTENTIAL EXPOSURE 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 and 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) and Human Resources Manager Marilyn Duffy 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 the 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)**  
**WORKCARE**  
**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 their 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 SITE DESCRIPTION**

The Naval Construction Battalion Center (NCBC) Gulfport, Mississippi was commissioned as the homeport of the Atlantic Fleet Seabees in 1966. The Base occupies approximately 1,100 acres in the western part of Gulfport in the southeastern coastal area of Mississippi. The Navy previously used the property as a Naval Training Center and Naval Storehouse starting in 1942. Presently, four Naval Mobile Construction Battalions (NMCB) are based at Gulfport.

#### **3.2 SITE LOCATION AND HISTORY**

Site 3, referred to as the northwest landfill/burning pit, encompasses approximately 3.5 Acres near the intersection of 8<sup>th</sup> St. and Colby Ave. The site was operated as a landfill from 1948 to the mid 1960s. There was a fire-fighting training pit from the mid 1950s to the mid 1960s. During the time of the landfill nearly all the solid waste and some of the liquid/chemical waste generated at the facility was disposed there. The landfill was a "trench and fill" landfill, with daily burning of the wastes. Thirty thousand tons of solid waste is estimated to have been dumped in the trenches. An estimated 130,000 gallons of waste fuel, oil, solvents (MEK, toluene, and xylene), paint and paint thinners were drained into the unlined pit and ignited. The receptors of greatest concern are the shallow surficial aquifer, the adjacent Canal No. 1, and several water supply wells. The cover on the landfill is 5 to 6 feet thick. The site is currently a fairway for the Pine Bayou Golf Course, operated by NCBC Gulfport.

## 4.0 SCOPE OF WORK

This section discusses the specific tasks that are to be conducted as part of this scope of work as identified by CTO 041. These tasks are the only ones addressed by this HASP. Any tasks to be conducted outside of the elements listed here will be considered a change in scope requiring modification of this document. The TOM or a designated representative will submit the requested modifications to this document to the HSM.

Specific tasks to be conducted include, but are not necessarily limited to, the following:

- Mobilization/demobilization activities
- Passive Gas Soil Sampling
- DPT Investigation w/ Mobile Lab Support (COCs-BTEX/TPH)
- Surface Water Sampling
- Sediment Sampling
- IDW Management
- Decontamination

For more detailed description of the associated tasks, refer to the Work Plan (WP).

## **5.0 TASKS/HAZARDS/ASSOCIATED CONTROL MEASURES**

Table 5-1 of this section serves as the primary portion of the site specific HASP. This table is intended to assist project personnel in the recognition of hazards and recommended procedures necessary to minimize potential exposure or injuries related to those hazards. The table also assists field team members in determining which personal protective equipment (PPE) and decontamination procedures to be used as well as appropriate air monitoring techniques and site-specific conditions. The evaluation of each task provides detailed information including anticipated hazards, recommended control measures, air monitoring recommendations, required PPE, and decontamination measures. This table must be updated if the scope of work, contaminants of concern or pertinent conditions change.

Table 5-1 and the HASP are meant to be accompanied by the TtNUS Health and Safety Guidance Manual. This manual is designed to further explain supporting elements for any site specific operations as required by 29 CFR 1910.120. The Guidance Manual should be referenced for additional information regarding air monitoring instrumentation, decontamination activities, emergency response, hazard assessments, hazard communication and hearing conservation programs, medical surveillance, PPE, respiratory protection, site control measures, standard work practices, and training requirements. Many of TtNUS's SOPs are also provided in the Guidance Manual.

Safe Work Permits will be issued for the exclusion zone activities (See Section 10.2). The FOL and/or the SSO will use the elements defined in Table 5-1 as the primary reference. The FOL and/or the SSO completing the Safe Work Permit will add additional site-specific information as warranted. 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, the following general safe work practices are to be followed when conducting work on-site. These safe work practices address a pattern of general precautions and measures for reducing risks associated with site operations. This list may be amended as necessary.

- Eating, drinking, chewing gum or tobacco, taking medication, or smoking is prohibited in contaminated or potentially contaminated areas or where the possibility for the transfer of contamination exists.

- 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.
- Take note of the location of the nearest telephone and emergency telephone numbers. See Section 2.0, Table 2-1.
- Attend briefings on anticipated hazards, equipment requirements, safe work permits, emergency procedures, and communication methods before going on site.
- Plan and mark entrance, exit, and emergency escape routes. See Section 2.0.
- Rehearse unfamiliar operations prior to implementation.
- Buddies should maintain visual contact with each other and with other on-site team members by remaining in close proximity to assist each other in case of emergency.
- Establish appropriate Safety zones.
- Establish appropriate decontamination procedures for leaving the site.
- Immediately report injuries, illnesses, and unsafe conditions, practices, and equipment to the Site Safety Officer (SSO).
- Observe coworkers for signs heat stress.
- Inform co-workers of potential symptoms of illness, such as headaches, dizziness, nausea, or blurred vision.

## **5.2 SOIL BORING - SAFE WORK PRACTICES**

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

- Identify underground utilities and buried structures before performing intrusive activities. Use the Utility Locating and Excavation Clearance Standard Operating Procedure provided in Attachment II. See notes for the time lines required for on and off-site utility clearances under mobilization/demobilization Section 4.1.
- DPT 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. Repairs or deficiencies identified will be corrected prior to use. The inspection will be accomplished using the Equipment Inspection

Checklist provided in Attachment V. Inspection frequencies will be once every 10 day shift or following repairs.

- The work area around the point of operation will be cleared/graded to the extent possible to remove any trip hazards near or surrounding operating equipment.
- The operator must verbally notify the crew before physically beginning DPT operations
- 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 drilling 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 DPT rig.
- Only personnel absolutely essential to the work activity will be allowed in the exclusion zone. Site visitors will be escorted.
- 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.
- Motorized equipment will be fueled prior to the commencement of the day's activities. During fueling operations equipment will be shutdown and bonded to the fuel provider.
- When not in use direct push rigs will be shutdown, emergency brakes set, and wheels chocked.
- 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.

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**TABLE 5-1**  
**TASKS/HAZARDS/CONTROL MEASURES**  
**NAVAL CONSTRUCTION BATTALION CENTER, GULFPORT, MISSISSIPPI**

Tasks/Operations/ Location	Anticipated Hazards	Recommended Control Measures	Hazard Monitoring	Personal Protective Equipment <i>(Items in italics are deemed optional as conditions or the FOL/SSO require.)</i>	Decontamination Procedures
Mobilization/ Demobilization	<p><b>Chemical hazards:</b></p> <p>1) Site contaminants are unlikely to be encountered during this task. However, the TtNUS Hazard Communication Program will be followed for any chemicals (fuels, sample preservatives, decontamination solvents, etc.) that are brought onsite in support of site activities.</p> <p><b>Physical hazards:</b></p> <p>2) Lifting (strain/muscle pulls)</p> <p>3) Slip, trips, and falls</p> <p>4) Ambient temperature extremes (heat stress)</p> <p>5) Clearing brush</p> <p><b>Natural hazards:</b></p> <p>6) Insect/animal bites and stings, poisonous plants, etc.</p>	<p>1) Implement the Hazard Communication Program (Section 5.0 TtNUS Health and Safety Guidance Manual) and assure that personnel understand its use. Inventory and obtain MSDSs for materials in use.</p> <ul style="list-style-type: none"> <li>- Chemical inventories and manufacturer Material Safety Data sheets (MSDS) will be maintained on site.</li> <li>- Information contained within MSDS will be used to determine necessary safe work practices and PPE requirements.</li> <li>- Maintain an MSDS binder in a location readily accessible by site personnel.</li> </ul> <p>2) Use machinery or multiple personnel for heavy lifts.</p> <ul style="list-style-type: none"> <li>- Use proper lifting techniques as defined in Section 4.0 of this Health and Safety Guidance Manual.</li> </ul> <p>3) Preview work locations for unstable/uneven terrain.</p> <p>4) Wear appropriate clothing for weather conditions.</p> <ul style="list-style-type: none"> <li>- Provide acceptable shelter and liquids for field crews.</li> <li>- Additional information regarding heat stress concerns is provided in Section 4 of the TtNUS Health and Safety Guidance Manual.</li> </ul> <p>5) Ensure the handle of the weed wacker is in good condition</p> <ul style="list-style-type: none"> <li>- Ensure all cutting tools are maintained. Blades shall be sharp without knicks and gouges in the blade.</li> <li>- All personnel will maintain a 10-foot perimeter around persons clearing brush.</li> </ul> <p>6) Avoid nesting areas, use commercially available repellents. Report potential hazards to the SSO.</p>	Not required	<p>Level D - (Minimum Requirements)</p> <ul style="list-style-type: none"> <li>- Standard field attire (long sleeve shirt; long pants)</li> <li>- Safety shoes (steel toe/shank)</li> <li>- <i>Cotton or leather work gloves when required</i></li> <li>- <i>Safety glasses</i></li> <li>- <i>Hardhat (when overhead hazards exists, or identified as a operation requirement)</i></li> <li>- Reflective vest for high traffic areas</li> </ul> <p><b>Note:</b> A Safe Work Permit (Attachment III) for this task 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>	Not required
Passive Gas Soil sampling using a ¾" drill and 3+ft. bit.	<p><b>Chemical hazards:</b></p> <p>1) Site history has indicated the landfill and burning pit under the landfill cap contained hazardous wastes.</p> <p>See Table 6-1 for more information on the chemicals of concern.</p> <p><b>Physical hazards:</b></p> <p>2) Utility Clearance</p> <p>3) Slip, trips, and falls</p> <p>4) Ambient temperature extremes (heat stress)</p> <p><b>Natural hazards:</b></p> <p>5) Insect/animal bites and stings, poisonous plants, etc.</p> <p>6) Inclement weather</p>	<p>1) Use real-time monitoring instrumentation, action levels, and identified PPE to control exposures to potentially contaminated media.</p> <p>2) Drilling activities will proceed in accordance with the Utility Locating and Excavation Clearance SOP in Attachment II of this HASP. All utility clearances will be obtained in writing, and locations identified and marked, prior to activities. Utility clearance is being provided NCBC Gulfport.</p> <p>3) Preview work locations for unstable/uneven terrain.</p> <p>4) Wear appropriate clothing for weather conditions. Provide acceptable shelter and liquids for field crews. Additional information regarding heat stress concerns is provided in the TtNUS Health and Safety Guidance.</p> <p>5) Avoid nesting areas, use commercially available repellents.</p> <ul style="list-style-type: none"> <li>- Spiders and bees next in well protective casings</li> <li>- Snakes are often found on monitoring well pads</li> <li>- Report potential hazards to the SSO.</li> <li>- Follow guidance presented in Section 4 of the Health and Safety Guidance Manual.</li> </ul> <p>6) Suspend or terminate operations until directed otherwise by the SSO.</p>	<p>A Photoionization Detector (PID) w/a 10.6 eV lamp or a Flame ionization Detector (FID) will be used detect any vapors that may have escaped from the landfill through fissures in the landfill cap. The following general guidance applies: Source (borehole) and breathing zone monitoring will be conducted at each sample location. Elevated readings above daily established background levels observed at a source area will require the SSO obtain readings within the breathing zone (BZ) of potentially affected employees.</p> <p>If sustained readings (more than 1 minute in duration) greater than background are observed within a workers BZ initiate measures to minimize exposure (retreat to an unaffected area, station personnel in an upwind location, etc.). Workers must evacuate to a safe area if sustained BZ concentrations exceed 1 ppm above background levels.</p> <p>If elevated readings persist, contact the PHSO for additional air monitoring guidance.</p>	<p>Level D protection will be utilized for the initiation of sampling activities.</p> <p>Level D - (Minimum Requirements)</p> <ul style="list-style-type: none"> <li>- Standard field attire (Sleeved shirt; long pants)</li> <li>- Steel toe safety shoes</li> <li>- Safety glasses</li> <li>- Surgical style gloves (double-layered if necessary)</li> <li>- <i>Reflective vest for high traffic areas</i></li> <li>- <i>Hardhat (when overhead hazards exist, such as golf balls, or identified as a operation requirement)</i></li> <li>- <i>Tyvek coveralls and disposable boot covers if surface contamination is present, if the potential for soiling work attire exists, or in tall brush. Tyvek aids in tick identification and removal.</i></li> </ul> <p><b>Note:</b> The Safe Work Permit(s) for this task (see Attachment III) 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><b>Personnel Decontamination</b> will consist of a removal and disposal of non-reusable PPE (gloves, coveralls, etc., as applicable). The decon function will take place at the end of the shift. This procedure will consist of:</p> <ul style="list-style-type: none"> <li>- Wipe the drill and ¾" drill bit.</li> <li>- Removal and disposal of gloves.</li> <li>- Clean face and hands with hygienic wipes until access to a decon station or rest room is obtained.</li> <li>- Check body carefully for ticks when exiting wooded or brush areas.</li> </ul>

**TABLE 5-1  
TASKS/HAZARDS/CONTROL MEASURES  
NAVAL CONSTRUCTION BATTALION CENTER, GULFPORT, MISSISSIPPI**

Tasks/Operation/ Locations	Anticipated Hazards	Recommended Control Measures	Hazard Monitoring - Type and Action Levels	Personal Protective Equipment <i>(Items in italics are deemed optional as conditions or the FOL or SSO require.)</i>	Decontamination Procedures
<p>Soil borings using DPT rigs.</p> <p>Subsurface Soil Sampling</p>	<p><b>Chemical hazards:</b></p> <p>1) The potential health hazards associated with this task include inhalation, ingestion, and dermal contact with various contaminants that may be present in shallow and deep soils and groundwater. Based on evidence from a past investigation, TPH and BTEX is expected to be encountered but no data exists indicating specific levels for these contaminants.</p> <p>2) Transfer of contamination into clean areas or onto persons</p> <p><b>Physical hazards:</b></p> <p>3) Heavy equipment hazards (pinch/compressions points, rotating equipment, hydraulic lines, etc.)</p> <p>4) Noise in excess of 85 dBA</p> <p>5) Energized systems (contact with underground or overhead utilities)</p> <p>6) Lifting (strain/muscle pulls)</p> <p>7) Slips, trips, and falls</p> <p>8) Vehicular and foot traffic</p> <p>9) Ambient temperature extremes (heat/cold stress)</p> <p>10) Flying projectiles</p> <p>11) Cuts/lacerations</p> <p><b>Natural hazards:</b></p> <p>12) Inclement weather</p>	<p>1) As a general rule, avoiding contact with contaminated media (air, water, soils, etc.) will be a universal control measure.</p> <p>2) Restrict the cross use of equipment and supplies between locations and activities without first going through a suitable decontamination. Use a rigid decontamination procedure will be used between locations and ensure materials are not carried and deposited in unaffected areas.</p> <p>3) Equipment will be:</p> <ul style="list-style-type: none"> <li>- Inspected in accordance with Federal safety and transportation guidelines, OSHA (1926.600.601.602), and manufacturer's design. Inspections will be documented using the Equipment Inspection Checklist found in Attachment V of this HASP.</li> <li>- Operated and supported by knowledgeable operators, and ground crew.</li> <li>- Used within safe work zones, with routes of approach clearly demarcated. Personnel not directly supporting this operation will remain at least 25 feet from the point of operation. See Section 9.0 of this HASP. This will be the area identified as the exclusion zone.</li> </ul> <p>In addition to equipment considerations, the following safe operating procedures will be incorporated:</p> <ul style="list-style-type: none"> <li>- Hydraulic masts or other projecting devices shall be at least 20 feet from overhead power sources and a minimum of 3 feet from underground utilities.</li> <li>- Hand signals will be established prior to the commencement of the operation.</li> <li>- A remote sampling device must be used to sample drill cuttings near rotating or advancing tools</li> <li>- Only manufacturer-approved equipment may be used in conjunction with equipment repair procedures</li> <li>- Work areas will be kept clear of clutter.</li> <li>- Secure loose articles to avoid possible entanglement during coring activities.</li> <li>- Self-propelled equipment shall be equipped with movement warning systems.</li> <li>- Personnel will be instructed in the location and operations of the emergency shut-off device(s). This device will be tested initially (and then periodically) to ensure its operational status.</li> <li>- Areas will be inspected prior to the movement of the drill rig and support vehicles to eliminate any physical hazards. This will be the responsibility of the FOL and/or SSO.</li> <li>- The drill rig and support vehicles will be moved no closer than 10 feet to unsupported side-walls of embankments.</li> </ul> <p>4) Hearing protection will be used during subsurface activities using a DPT rig when noise levels are &gt; 85 dBA. (during operation). Boundaries will be established to limit noise hazard. Height of the mast + 5 feet or a minimum of 25 feet is normal. Excessive noise levels are being approach when you have to raise your voice to be heard by someone within 2 feet of your location.</p> <p>5) Boring activities will proceed in accordance with the Utility Locating and Excavation Clearance SOP in Attachment II of this HASP. Utility clearances will be obtained, in writing, and locations identified and marked prior to activities. Overhead utilities will also be identified.</p> <p>6) Use machinery or multiple personnel for heavy lifts. Use proper lifting techniques.</p> <p>7) Preview work locations for unstable/uneven terrain.</p> <p>8) Use traffic-warning signs, flag persons, and high visibility vests as determined by the SSO when working in or along traffic thoroughfares.</p> <p>9) Wear appropriate clothing for weather conditions. Acceptable shelter and liquids for field crews.</p> <p>10) Wear eye protection and hard hat when the DPT rig is operating. Restrict others from the area.</p> <p>11) Use manufacturer approved devices (macro core holder and cutter) to cut cores. Do not rest cores on knees or near other body parts when cutting.</p> <p>12) Suspend or terminate operations until directed otherwise by SSO.</p>	<p>A direct reading Photoionization Detector (PID) with a 10.6 eV lamp source (or higher) or a Flameionization Detector (FID) will be used to screen samples and to detect the presence of any potential volatile organics. Source monitoring at the borehole will be conducted 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> <ul style="list-style-type: none"> <li>- Monitor the breathing zone of at-risk and downwind employees. Any sustained readings (greater than 1 minute in duration) above background in the breathing zone of the at-risk employees requires site activities to be suspended and site personnel to report to an unaffected area.</li> <li>- Work may only resume if airborne readings in worker breathing zone return background levels. If elevated readings in worker breathing zone persist, the PHSO and HSM will be contacted to determine necessary actions and levels of protection.</li> </ul>	<p>Boring operations will be performed in Level D protection, including the following articles:</p> <p><b>Sampler / Oversight Personnel:</b></p> <ul style="list-style-type: none"> <li>- Standard field dress (long pants, Sleeved shirts)</li> <li>- Steel toe safety shoes or work boots</li> <li>- Hard hat</li> <li>- Safety eyewear (glasses)</li> <li>- <i>Reflective vest for high traffic areas</i></li> </ul> <p><b>Driller and Driller Helper</b></p> <ul style="list-style-type: none"> <li>- Standard field attire including sleeved shirt and long pants</li> <li>- Safety shoes (Steel toe/shank)</li> <li>- Safety glasses</li> <li>- Nitrile inner gloves</li> <li>- Hard hat (when overhead hazard exists)</li> <li>- Hearing protection for high noise areas</li> <li>- <i>Reflective vest for traffic areas</i></li> </ul> <p><b>Note:</b> The Safe Work Permit(s) for this task (see Attachment III of this HASP) 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. Protective levels may require modification should this activity be required to be conducted within a controlled zone due to an on-going operation.</p>	<p><b>Personnel Decontamination</b> will consist of a soap/water wash and rinse for reusable protective equipment. Non-reusable protective equipment will be removed and disposed of at the site.</p> <p>If contamination, free product or mud is present that requires the use of modified Level D protection, the following sequential procedure will be used:</p> <p>Stage 1: Equipment drop, remove outer protective wrapping; Decon personnel will wipe down the outer shell.</p> <p>Stage 2: Soap/water wash and rinse of outer boots and gloves</p> <p>Stage 3: Soap/water wash and rinse of the outer splash suit, as applicable. If personnel are wearing cotton coveralls these may be vacuumed at this point.</p> <p>Stage 4: Disposable PPE will be removed and bagged.</p> <p>Stage 5: Wash face and hands</p> <p>Stage 6: Depending on ambient conditions, you may be required to report for medical evaluation. This evaluation consists of pulse, breathing rate, oral temperature, and body weight. This medical screening will be performed when ambient conditions dictate and during periods of acclimatization.</p> <p><b>Equipment Decontamination</b> - Heavy equipment decontamination will take place at a centralized decontamination pad. Heavy equipment will have the wheels and tires cleaned along with any loose debris removed, prior to transporting to the central decontamination area. 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><b>Sampling Equipment Decontamination</b></p> <p>Sampling equipment will be decontaminated as per the requirements in the Sampling and Analysis Plan and/or Work Plan.</p> <p>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 equipment arriving on-site, leaving the site, and between locations. No equipment will be authorized access, exit, or movement to another location without this evaluation.</p>

**TABLE 5-1  
TASKS/HAZARDS/CONTROL MEASURES  
NAVAL CONSTRUCTION BATTALION CENTER, GULFPORT, MISSISSIPPI**

Tasks/Operation/Locations	Anticipated Hazards	Recommended Control Measures	Hazard Monitoring - Type and Action Levels	Personal Protective Equipment <i>(Items in italics are deemed optional as conditions or the FGL or SSO require.)</i>	Decontamination Procedures
<p>Multi-media sampling, including surface water and sediment sampling including onsite lab analysis.</p>	<p><b>Chemical hazards:</b></p> <ol style="list-style-type: none"> <li>1) The potential health hazards associated with this task include inhalation, ingestion, and dermal contact with various contaminants that may be present in shallow and deep soils and groundwater. Based on evidence from a past investigation, TPH and BTEX is expected to be encountered but no data exists indicating specific levels for these contaminants.</li> <li>2) Transfer of contamination into clean areas or onto persons. into clean areas</li> </ol> <p><b>Physical hazards:</b></p> <ol style="list-style-type: none"> <li>3) Slips, trips, and falls</li> <li>4) Ambient temperature extremes (heat/cold stress)</li> <li>5) Vehicular and foot traffic</li> <li>6) Site Characterization</li> <li>7) Cuts/lacerations</li> </ol> <p><b>Natural hazards:</b></p> <ol style="list-style-type: none"> <li>8) Inclement weather</li> </ol>	<ol style="list-style-type: none"> <li>1) As a general rule, avoiding contact with contaminated media (air, water, soils, etc.) and any potential free product will be a universal control measure.</li> <li>2) Decontaminate equipment and supplies between sampling locations and prior to leaving the site. See decontamination of heavy and sampling equipment for direction in this task.</li> <li>3) Preview work locations for unstable/uneven terrain. <ul style="list-style-type: none"> <li>- Ruts, roots, and other tripping hazards should be eliminated from around the rotating apparatus to minimize trips and falls when approaching the rotating tooling.</li> <li>- Use multiple persons and small loads to pack sampling resources to remote locations.</li> <li>- Construct rope ladders and other engineered assistance for traversing hills and inclines &gt; 45°.</li> </ul> </li> <li>4) Wear appropriate clothing for weather conditions. Provide acceptable shelter and liquids for field crews. Additional information regarding heat/cold stress is provided in Section 4.0 of the Health and Safety Guidance Manual.</li> <li>5) Traffic and equipment considerations are to include the following: <ul style="list-style-type: none"> <li>- Establish safe zones of approach (i.e. Mast or Boom + 5 feet). See Section 9 of the HASP for specific safety zones and established clearance recommendations.</li> <li>- Self-propelled equipment shall be equipped with movement warning systems.</li> <li>- When sampling along roadways, use signs to indicate men working as well flag persons, as necessary. Personnel working in and around any established traffic patterns should wear high visibility vests to increase visual recognition.</li> </ul> </li> <li>6) Work areas will be surveyed prior to committing personnel or resources. The survey will be conducted by the FOL and/or the SSO. The purpose is to identify physical and natural hazards that may impact the proposed work area. These hazards are to be identified, barricaded, or eliminated to the extent possible to minimize potential effect to field crew.</li> <li>7) Use manufacturer approved devices (macro core holder and cutter) to cut cores. Do not rest cores on knees or near other body parts when cutting.</li> <li>8) Suspend or terminate operations until directed otherwise by the SSO.</li> </ol>	<p>A direct reading Photoionization Detector (PID) with a 10.6 eV lamp source (or higher) or a Flameionization Detector (FID) will be used to screen samples and to detect the presence of any potential volatile organics. Source monitoring at the borehole will be conducted 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> <ul style="list-style-type: none"> <li>- Monitor the breathing zone of at-risk and downwind employees. Any sustained readings (greater than 1 minute in duration) above background in the breathing zone of the at-risk employees requires site activities to be suspended and site personnel to report to an unaffected area.</li> <li>- Work may only resume if airborne readings in worker breathing zone return background levels. If elevated readings in worker breathing zone persist, the PHSO and HSM will be contacted to determine necessary actions and levels of protection.</li> </ul> <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 following sampling activities</p> <p>Surface soils, subsurface soils, surface water, groundwater, and sediments</p> <p>Level D - (Minimum Requirements)</p> <ul style="list-style-type: none"> <li>- Standard field attire (Sleeved shirt; long pants)</li> <li>- Safety shoes (steel toe/shank)</li> <li>- Safety glasses</li> <li>- Surgical style gloves (<i>double-layered if necessary</i>)</li> <li>- <i>Reflective vest for high traffic areas</i></li> <li>- <i>Hardhat (when overhead hazards exists, or identified as a operation requirement)</i></li> <li>- <i>Tyvek coveralls and disposable boot covers if surface contamination is present or if the potential for soiling work attire exists.</i></li> <li>- <i>Hearing protection for high noise areas, or as directed on an operation by operation scenario.</i></li> </ul> <p><b>Note:</b> The Safe Work Permit(s) for this task (See Attachment III) 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><b>Personnel Decontamination</b></p> <p>Personal decontamination will vary based on the type of sampling conducted. These are as follows:</p> <p>Supporting subsurface investigations at the drill rig.</p> <ul style="list-style-type: none"> <li>- Decontamination will be the same as prescribed for the soil boring activity</li> </ul> <p>Sampling surface water, groundwater, and sediments, the following provisions will apply</p> <ul style="list-style-type: none"> <li>- Upon completion of the sampling dedicated trowels, tubing, etc. will be bagged for transport back to the central decontamination area.</li> <li>- PPE (gloves) will be removed and also bagged for disposal.</li> <li>- Handi-Wipes or similar product will be used to clean hands prior to moving to the next location.</li> </ul> <p><b>Equipment Decontamination</b></p> <p>Equipment used in remote sampling locations will be brought back to the central decontamination area for decontamination and re-use or decontamination and gross removal of contamination prior to disposal.</p> <p><b>Note:</b> Field screening instruments will be wrapped to minimize the necessary decontamination except for wiping down parts which are necessary to expose to the external environment. The equipment reference above is largely directed at hand tools. Decontamination of equipment (sampling and hand tools) will proceed as indicated in the Sampling and Analysis Plan and/or Work Plan.</p>
<p>Geographical Surveying</p>	<p><b>Chemical hazards:</b></p> <p>Significant exposure to site contaminants is anticipated to be unlikely given the nature of this task.</p> <p><b>Physical hazards:</b></p> <ol style="list-style-type: none"> <li>1) Slips, trips, and falls</li> <li>2) Struck by</li> <li>3) Ambient temperature extremes (heat stress)</li> </ol> <p><b>Natural hazards:</b></p> <ol style="list-style-type: none"> <li>4) Inclement weather</li> </ol>	<ol style="list-style-type: none"> <li>1) Preview work locations and site lines for uneven and unstable terrain. Clear necessary vegetation, establish temporary means for traversing hazardous terrain (i.e., rope ladders, etc.)</li> <li>2) If hand tools (brush hooks, machetes, etc.) are necessary to clear and carry lines and bench marks to the area of operation the following precautions are recommended <ul style="list-style-type: none"> <li>- Ensure handles are of good construction (no cracks, splinters, loose heads/cutting apparatus.</li> <li>- Ensure cutting tools are maintained. Blades shall be sharp without nicks and gouges in the blade.</li> <li>- Hand tools (brush hooks, machetes, etc.) with cutting blades shall be provided with a sheath to protect individuals when not in use.</li> <li>- Personnel will maintain a 10-foot perimeter around persons clearing brush.</li> </ul> </li> <li>3) Wear appropriate clothing for weather conditions. Acceptable shelter and liquids for field crews.</li> <li>4) Suspend or terminate operations until directed otherwise by SSO</li> </ol> <p>See Section 4.0 of the TtNUS Health and Safety Guidance Manual and Section 6.3 of this HASP for additional information concerning natural hazards.</p>	<p>No air monitoring is needed given the unlikelihood that airborne contaminants will be present. The potential for exposure to site contaminants during this activity is considered minimal. As most of this activity is conducted either before or after the intrusive aspect of this operation, therefore, minimizing potential exposure.</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"> <li>- Standard field dress including sleeved shirt and long pants</li> <li>- Safety shoes (Steel toe/shank)</li> <li>- Work gloves shall be worn when clearing brush.</li> <li>- <i>Safety glasses, hard hats (if working near machinery, or overhead hazards)</i></li> <li>- <i>Snake chaps for heavily wooded area where encounters are likely.</i></li> <li>- <i>Tyvek coveralls may be worn to provide additional protection against poisonous plants and insects, particularly ticks.</i></li> </ul> <p><b>Note:</b> The Safe Work Permit(s) for this task (See Attachment III) 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. Protective levels may require modification should this activity be required to be conducted within a controlled zone due to an on-going operation.</p>	<p><b>Personnel Decontamination</b> - A structured decontamination is not required as the likelihood of encountering contaminated media is considered remote. However, survey parties should inspect themselves and one another for the presence of ticks when exiting wooded areas, grassy fields, etc. This action will be employed to stop the transfer of these insects into vehicles, homes, and offices.</p>

**TABLE 5-1**  
**TASKS/HAZARDS/CONTROL MEASURES**  
**NAVAL CONSTRUCTION BATTALION CENTER, GULFPORT, MISSISSIPPI**

Tasks/Operation/Locations	Anticipated Hazards	Recommended Control Measures	Hazard Monitoring - Type and Action Levels	Personal Protective Equipment <i>(Items in italics are deemed optional as conditions or the FOL or SSO dictate.)</i>	Decontamination Procedures
<p>IDW Management and Handling</p> <p>This activity includes the following tasks:</p> <ul style="list-style-type: none"> <li>- Containerization</li> <li>- Labelling</li> <li>- Staging</li> <li>- Monitoring</li> </ul> <p>of IDW generated in support of site activities.</p>	<p><b>Chemical hazards:</b></p> <p>1) The only anticipated chemical hazard associated with IDW management is the potential for a spill. In situations such as that the spill containment program identified in Section 9.0 of this HASP will be employed.</p> <p><b>Physical hazards:</b></p> <ol style="list-style-type: none"> <li>1) Strains and sprains</li> <li>2) Compressions</li> <li>3) Loading bulk transport containers</li> </ol>	<p>1) It is not anticipated that chemical hazards will be significant during this operation, as the IDW will be in sealed containers. It is anticipated that the IDW will represent a limited chemical hazard, if the container is breached. Control measures in this case will represent PPE and good work hygiene practices to control potential exposures during the implementation of the Spill Containment Program (See Section 9.0 of this HASP).</p> <p>2) The predominant hazard associated with this activity is the movement of full or partially full 55-gallon drums of soils and/or water. To minimize hazards of this nature the following provisions shall be incorporated as applicable:</p> <ul style="list-style-type: none"> <li>- Use machinery (preferred method) or multiple personnel for heavy lifts</li> <li>- Use proper lifting techniques               <ul style="list-style-type: none"> <li>--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.</li> <li>--Minimize the horizontal distance to the center of the lift to your center of gravity.</li> <li>--Minimize turning and twisting when lifting as the lower back is especially vulnerable at this time.</li> <li>--Break lifts into steps if the vertical distance (from the start point to the placement of the lift) is excessive.</li> <li>--Plan your lifts – Place heavy items on shelves between the waist and chest; lighter items on higher shelves.</li> <li>--Periods of high frequency lifts or extended duration lifts should provide sufficient breaks to guard against fatigue and injury.</li> </ul> </li> </ul> <p>In determining whether you can lift or move an item several factors must be considered, these are as follows:</p> <ul style="list-style-type: none"> <li>- Area available to maneuver the lift.</li> <li>- Area of the lift – Work place clutter, slippery surfaces, rough terrain</li> <li>- Overall physical condition</li> </ul> <p>3) Another hazard frequently associated with this task is the compression of hands and fingers when placing the containers on pallets. This typically occurs when rolling and lowering the container in its place. To combat this hazard, the following provision shall be employed. Material handling devices shall be used for moving drums within the satellite storage area. This includes drum dollies with pneumatic tires, drum grapplers, etc. to handle drums of IDW. These pieces of equipment are engineered to allow placement of these containers while keeping hands from pinch/compression points.</p>	<p>None Required, unless spill containment provisions are invoked. Then monitoring will proceed as described in the activity associated with the task when the materials were generated such as Soil boring or well installation.</p>	<p>Level D - (Minimum Requirements)</p> <ul style="list-style-type: none"> <li>- Standard field attire (Sleeved shirt; long pants)</li> <li>- Safety shoes (Steel toe/shank)</li> <li>- Leather or canvas work gloves</li> <li>- <i>Safety glasses (When utilizing cables or slings to move the containers)</i></li> <li>- <i>Hardhat (when overhead hazards exists, or identified as a operation requirement)</i></li> </ul> <p><u>PPE changes may be made with the implementation of the Spill Containment Program. This represents the only anticipated modification to this level of protection.</u></p>	<p>Not required, unless the implementation of the Spill Containment Program is required due to a spill and/or release. At that point the decontamination procedures for those activities such as soil borings and/or well installation. The reference reflects the tasks conducted when the materials were generated.</p>

**TABLE 5-1**  
**TASKS/HAZARDS/CONTROL MEASURES**  
**NAVAL CONSTRUCTION BATTALION CENTER, GULFPORT, MISSISSIPPI**

Tasks/Operation/Locations	Anticipated Hazards	Recommended Control Measures	Hazard Monitoring - Type and Action Levels	Personal Protective Equipment <i>(Items in italics are deemed optional as conditions or the FOL or SSO dictate.)</i>	Decontamination Procedures
<p>Decontamination of Sampling and Heavy Equipment</p> <p>It is anticipated that this activity will take place at a centralized location. Gross contamination will be removed to the extent possible at the site. Contaminated tooling then will be wrapped in polyethylene sheeting for transport to the centralized location for a full decontamination and evaluation.</p>	<p><b>Chemical hazards:</b></p> <p>1) The potential health hazards associated with this task include inhalation, ingestion, and dermal contact with various contaminants that may be present in shallow and deep soils and groundwater. Based on evidence from a past investigation, TPH and BTEX is expected to be encountered but no data exists indicating specific levels for these contaminants.</p> <p>2) Decontamination fluids - Liquinox (detergent); isopropanol (decontamination solvent)</p> <p><b>Physical hazards:</b></p> <p>3) Lifting (strain/muscle pulls)</p> <p>4) Noise in excess of 85 dBA</p> <p>5) Flying projectiles</p> <p>6) Slips, trips, and falls</p> <p><b>Natural hazards:</b></p> <p>7) Inclement weather</p>	<p>1) and 2) Employ protective equipment to minimize contact with site contaminants and hazardous decontamination fluids. Control potential non-occupational exposures through good work hygiene practices (i.e., avoid hand to mouth contact; wash hands and face before breaks and lunch; minimize contact with contaminated media). Obtain manufacturer's MSDS for any decontamination fluids used on-site. Solvents may only be used in well-ventilated areas, such as outdoors. Use appropriate PPE as identified on MSDS or within this HASP. Chemicals used must be listed on the Chemical Inventory for the site, and site activities must be consistent with the Hazard Communication Program provided in Section 5.0 of the TtNUS Health and Safety Guidance Manual.</p> <p>3) Use multiple persons where necessary for lifting and handling heavy equipment, such as auger flights for decontamination purposes.</p> <p>- Employ proper lifting techniques as described in Table 5-1, Mobilization/Demobilization.</p> <p>4) Wear hearing protection when operating the pressure washer and/or steam cleaner. Sound pressure levels measured during the operation of similar pieces of equipment indicate a range of 87 to 93 dBA.</p> <p>5) Use eye and face protective equipment when operating the pressure washer and/or steam cleaner, due to flying projectiles. 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 Fan Tip 25° or greater will be used on pressurized systems over 3,000 psi. This will reduce the possibility of water lacerations or punctures.</p> <p>- Thermostat control will be in place and operational to control the temperature levels of the water where applicable.</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) The decontamination pad should be constructed to contain wash waters generated during decontamination procedures. Temporary decontamination pads are usually 10-30 mil polyethylene or polyvinyl chloride tarp construction. Although these items when used as a liner offer containment, they also present a slipping hazard. When these temporary liners are employed, it is recommended that a light coating of sand be spread over the walking surface to provide traction.</p> <p>- In addition, adequate slope should be provided to the pad to permit drainage away from the object being cleaned. The collection point for wash waters should be of adequate distance that the decontamination workers do not have to walk through the wash waters while completing their tasks.</p> <p>- Hoses should be gathered when not in use to eliminate potential tripping hazards.</p> <p>7) Suspend or terminate operations until directed otherwise by SSO.</p>	<p>Use visual observation and real-time monitoring instrumentation to ensure that equipment has been properly cleaned of contamination and dried.</p>	<p><b>For Heavy Equipment</b> This applies to pressure washing and/or steam cleaning operations and soap/water wash and rinse procedures.</p> <p>Level D Minimum requirements: - Standard field attire (Long sleeve shirt; long pants) - Safety shoes (Steel toe/shank) - Chemical resistant boot covers - Nitrile outer gloves over nitrile inner gloves - Safety glasses underneath a splash shield - Hearing protection (plugs or muffs) - Hooded PVC Rainsuits or PE or PVC coated Tyvek</p> <p>For sampling equipment (trowels, Macro-Core Samplers, bailers, etc.), the following PPE is required</p> <p><b>Note:</b> Consult MSDS for PPE guidance. Otherwise, observe the following.</p> <p>Level D Minimum requirements - - Standard field attire (Long sleeve shirt; long pants) - Safety shoes (Steel toe/shank) - Nitrile outer gloves over nitrile inner gloves - Safety glasses - Impermeable apron</p> <p>In the event of overspray of chemical decontamination fluids, employ PVC Rainsuits or PE or PVC coated Tyvek as necessary.</p> <p><b>Note:</b> The Safe Work Permit(s) for this task (See Attachment III) 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><b>Personnel Decontamination</b> will consist of a soap/water wash and rinse for reusable and non-reusable outer protective equipment (boots, gloves, PVC splash suits, as applicable). This decontamination function may be subdivided into two locations.</p> <p>Gross contamination of outer boots and outer gloves will be removed at a satellite location near the operation.</p> <p>Final wash and rinse will take place at the centralized decontamination pad.</p> <p>The sequential procedure is as follows: Stage 1: Equipment drop, remove outer protective wrapping; personnel will wipe down the outer shell and pass hand equipment through as necessary. Stage 2: Soap/water wash and rinse of outer boots and gloves Stage 3: Soap/water wash and rinse of the outer splash suit, as applicable Stage 4: Disposable PPE will be removed and bagged. Stage 5: Wash face and hands Stage 6: Depending on ambient conditions, you may be required to report for medical evaluation. This evaluation consists of pulse, breathing rate, oral temperature, and body weight. This medical screening will be performed when ambient conditions dictate and during periods of acclimatization.</p> <p><b>Equipment Decontamination</b> - Heavy equipment decontamination will take place at a centralized decontamination pad utilizing a steam cleaner. Heavy equipment will have the wheels and tires cleaned along with any loose debris removed, prior to transporting to the central decontamination area. 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 on-site activity.</p> <p><b>Sampling Equipment Decontamination</b></p> <p>Sampling equipment will be decontaminated as per the requirements in the Sampling and Analysis Plan and/or Work Plan.</p> <p>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 equipment arriving on-site, leaving the site, and between locations. No equipment will be authorized access, exit, or movement to another location without this evaluation. This will include the screening process for radiological contaminants.</p>

## **6.0 HAZARD ASSESSMENT**

This section provides information regarding the chemical, physical, and natural hazards associated with the sites to be investigated and the activities that are to be conducted as part of the scope of work. Table 6-1 provides information on potential chemical contaminants, including exposure limits, symptoms of exposure, physical properties, and air monitoring and sampling data.

### **6.1 CHEMICAL HAZARDS**

The potential health hazards associated with NCBC Gulfport include inhalation, ingestion, and dermal contact of various contaminants that may be present in shallow and deep soils. Based on a previous investigation Benzene, Ethylene, Toluene and Xylene (BETX) and Total Petroleum Hydrocarbons (TPH) are the contaminants of concern. Waste fuel, oil, solvents, paint and paint thinners were disposed and burned at this site. The site has been capped with a soil cover which is 5 to 6 feet thick

Exposure to site contaminants is most likely to occur through inhalation or dermal contact of contaminated soil, or through ingestion via hand-to-mouth contact during soil disturbance activities. For this reason, PPE and basic hygiene practices (e.g., washing face and hands before leaving site) will be extremely important. As a pre-cautionary measure, airborne concentrations of detectable site contaminants will be monitored and evaluated using a PID. Given the nature of planned activities and that work will be conducted outside in the open air, it is unlikely that any appreciable airborne concentrations will be present. Since potential site contaminants have not been thoroughly characterized, conservative action levels for air monitoring have been established. Any elevated readings in worker breathing zones will require site activities to be suspended.

Other sources of potential chemical exposure are decontamination fluids (e.g., Liquinox, isopropanol), and analytical preservatives. For any substances brought onto the site, the SHSO is responsible for instituting a site-specific Hazard Communication Program (see Section 5.0 of the TtNUS Health and Safety Guidance Manual) and for collecting the appropriate Material Safety Data Sheets (MSDS) from the chemical manufacturers/suppliers. The SHSO is also responsible for completing the Safe Work Permit for the decontamination task using the appropriate MSDS and for reviewing the contents of the MSDSs and Safe Work Permit with anyone who will use these substances.

**TABLE 6-1  
CHEMICAL, PHYSICAL AND TOXICOLOGICAL DATA  
NCBC – GULFPORT, MISSISSIPPI – CTO 041**

Substance	CAS No.	Air Monitoring	Exposure Limits	Warning Property Rating	Physical Properties	Health Hazard Information
Benzene	71-43-2	PID: I.P 9.24 eV, 100% response with PID and 10.2 eV lamp.  FID: 150% relative response ratio with FID.	OSHA: 1 ppm ACGIH: 0.5 ppm NIOSH: 0.1 ppm IDLH: 500 ppm	Inadequate - Odor threshold 34-199 ppm. OSHA accepts the use of air-purifying respirators with organic vapor cartridge up to 10 ppm despite the inadequate warning properties providing cartridges are changed at the beginning of each shift.  <b>Recommended gloves:</b> Butyl/neoprene blend - >8.00 hrs; Silver shield as a liner - >8.00 hrs; Viton - >8.00 hrs	<b>Boiling Pt:</b> 176°F; 80°C <b>Melting Pt:</b> 42°F; 5.5°C <b>Solubility:</b> 0.07% <b>Flash Pt:</b> 12°F; -11°C <b>LEL/LFL:</b> 1.3% <b>UEL/UFL:</b> 7.9% <b>Vapor Density:</b> 2.77 <b>Vapor Pressure:</b> 75 mmHg <b>Specific Gravity:</b> 0.88 <b>Incompatibilities:</b> Strong oxidizers, fluorides, perchlorates, and acids <b>Appearance and Odor:</b> Colorless to a light yellow liquid with an aromatic odor	Overexposure may result in irritation to the eyes, nose, throat, and respiratory system. CNS effects include giddiness, lightheadedness, headaches, staggered gait, fatigue, and lassitude and depression. Additional effects may include nausea. Long duration exposures may result in respiratory collapse. Regulated as an OSHA carcinogen. May cause damage to the blood forming organs and may cause a form of cancer called leukemia.
Ethylbenzene	100-41-4	PID: I.P 8.76, High response with PID and 10.2 eV lamp.  FID: 100% response with FID.	ACGIH & NIOSH: 100 ppm; 125 ppm STEL  OSHA: 100 ppm  IDLH: 800 ppm	Adequate - Can use air-purifying respirator with organic vapor cartridge up to 1,000 ppm.  <b>Recommended gloves:</b> Neoprene or nitrile w/ silver shield when potential for saturation; Teflon >3.00 hrs	<b>Boiling Pt:</b> 277°F; 136°C <b>Melting Pt:</b> -139°F; -95°C <b>Solubility:</b> 0.01% <b>Flash Pt:</b> 55°F; 13°C <b>LEL/LFL:</b> 1.0% <b>UEL/UFL:</b> 6.7% <b>Vapor Density:</b> 3.66 <b>Vapor Pressure:</b> 10 mmHg @ 79°F; 26°C <b>Specific Gravity:</b> 0.87 <b>Incompatibilities:</b> Strong oxidizers <b>Appearance and odor:</b> Colorless liquid with an aromatic odor. Odor Threshold of 0.092-0.60.	Regulated primarily because of its potential to irritate the eyes and respiratory system. In addition, effects of overexposure may include headaches, narcotic effects, CNS changes (i.e., coordination impairment, impaired reflexes, tremoring) difficulty in breathing, possible chemical pneumonia, and potentially respiratory failure or coma.
Toluene	108-88-3	PID: I.P 8.82 eV, High response with PID and 10.2 eV lamp.  FID: 110% response with FID.	OSHA: 200 ppm 300 ppm (Ceiling)  ACGIH: 50 ppm (skin)  NIOSH: 100 ppm 150 ppm STEL  IDLH: 500 ppm	Adequate - Odor threshold 1.6 ppm is considered good. Can use air-purifying respirator with organic vapor cartridge up to 1,000 ppm.  <b>Recommended gloves:</b> Teflon >15.00 hrs; Viton >16.00 hrs; silver shield >6,00 hrs; supported nitrile (Useable time limit 0.5 hr, complete submersion for the nitrile selection); PV alcohol >25.00 hrs	<b>Boiling Pt:</b> 232°F; 111°C <b>Melting Pt:</b> -139°F; -95°C <b>Solubility:</b> 0.05% (61°F; 16°C) <b>Flash Pt:</b> 40°F; 4°C <b>LEL/LFL:</b> 1.2% <b>UEL/UFL:</b> 7.1% <b>Vapor Density:</b> 3.14 <b>Vapor Pressure:</b> 20 mmHg @ 65°F; 18°C <b>Specific Gravity:</b> 0.87 <b>Incompatibilities:</b> Strong oxidizers <b>Appearance and odor:</b> Colorless liquid with a sweet pungent aromatic odor.	Overexposure to this substance may result in mild to moderate irritation at all points of contact, and CNS changes including euphoria, confusion, nervousness, and possibly paresthesia characterized by an abnormal burning sensation, pricking, or numbness. At 200-500 ppm exposure has resulted in headaches, nausea, eye irritation, loss of appetite, bad taste, impair coordination, fatigue, and weariness. Chronically, toluene overexposure may result in dermatitis, liver, and kidney damage.

**TABLE 6-1  
CHEMICAL, PHYSICAL AND TOXICOLOGICAL DATA  
NCBC – GULFPORT, MISSISSIPPI – CTO 041**

Substance	CAS No.	Air Monitoring	Exposure Limits	Warning Property Rating	Physical Properties	Health Hazard Information
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.	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 1,000 ppm concentrations.  <b>Recommended gloves:</b> 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)	<b>Boiling Pt:</b> 269-281°F; 132-138°C <b>Melting Pt:</b> -130/-54m/56p°F; -25o/- 48m/13p °C <b>Solubility:</b> 0.02 % <b>Flash Pt:</b> 81-90°F;27-32°C <b>LEL/LFL:</b> 0.9% <b>UEL/UFL:</b> 7.0% <b>Vapor Density:</b> 3.66 <b>Vapor Pressure:</b> 7-9 mmHg @ 70°F; 21°C <b>Specific Gravity:</b> 0.86-0.88 <b>Incompatibilities:</b> Strong oxidizers and strong acids <b>Appearance and odor:</b> 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.
Waste Oils  All information is based on mineral oil	N.E. 8012-95-1 for mineral oil	Varies between fractions however waste oils tend to be less volatile. The FID tends to handle the longer chained aliphatic hydrocarbons more efficiently than its PID counterpart and would be selected as the instrument of choice.	ACGIH; NIOSH: 5 mg/m <sup>3</sup> (Oil mists); 10 mg/m <sup>3</sup> STEL  OSHA: 5 mg/m <sup>3</sup> (Oil mists)	Non-volatile substance, therefore no respiratory protection is required. In an aerosol form dust and mist respirator would be considered acceptable for up to 500 mg/m <sup>3</sup> .  <b>Recommended gloves:</b> Any glove suitable to prevent skin contact (Nitrile has been the one most widely used for the other substances, and will be acceptable).	<b>Boiling Pt:</b> 680°F; 360°C <b>Melting Pt:</b> Not available <b>Solubility:</b> Insoluble <b>Flash Pt:</b> 275-500°F; 135-260°C depends on the distillation fraction <b>LEL/LFL:</b> Not available <b>UEL/UFL:</b> Not available <b>Vapor Density:</b> Not available <b>Vapor Pressure:</b> <0.5 mmHg <b>Specific Gravity:</b> 0.90 <b>Incompatibilities:</b> None reported <b>Appearance and odor:</b> Colorless, oily, with an odor of burned lubricating oil.	Minor irritation to the eyes, skin, and respiratory system.

## 6.2 PHYSICAL HAZARDS

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

- Slips, trips, and falls
- Cuts (or other injuries associated with hand tool use)
- Lifting (strain/muscle pulls)
- Ambient temperature extremes (cold and heat stress)
- Pinches and compressions
- Heavy equipment hazards (rotating equipment, hydraulic lines, etc.)
- Energized systems (contact with underground or overhead utilities)
- Vehicular and foot traffic
- Noise in excess of 85 dBA
- Flying projectiles
- Water hazards

Each of these physical hazards is discussed in greater detail in Section 4.0 of the TtNUS health and Safety Guidance Manual. Additionally, information on the associated control measures for these hazards are discussed in Table 5-1 of this HASP. Some of these hazards and the associated control measures are discussed below due to the emphasis on incident and injury history.

### 6.2.1 Slips, Trips, and Falls

Conditions such as steep terrain and/or heavy vegetation may create an increased potential for slip, trip, and fall hazards.

- The safest approach to sample points will be identified and cleared to permit field crew access to sample locations.
- Footwear with an adequate traction.
- Prepare work areas by removing tripping hazards (ruts, roots, debris).

### 6.2.2 Cuts or Other Injuries Associated with Hand Tool Use

The clearing of brush and vegetation will be performed using weed trimming equipment. The control measures presented below will help minimize the potential for physical and cutting hazards.

- Wear leather or heavy cotton work gloves when using tools to protect against blisters, cuts, or other hand injuries.
- Wear eye protection (safety glasses with side shields) to protect the eyes from twigs, sticks, or flying debris.
- Clear the immediate cutting area of personnel (radius of the tool swing area).
- Wear long pants and long-sleeved shirts to protect against abrasions.
- Wear hard hats if work will involve areas with overhead hazards (e.g., overhanging branches).
- Wear sturdy work boots.

### **6.2.3 Energized Systems (Contact with Underground or Overhead Utilities)**

Underground utilities such as pressurized lines, water, telephone, buried utility, and high voltage power lines may be present throughout the facility. Therefore, subsurface activities must be conducted following the requirements of the Tetra Tech NUS SOP for "Utility Locating and Excavation Clearance (HS-1.0)". A copy of this SOP is provided as Attachment II. Clearance of underground and overhead utilities for each location will be coordinated with the NCBC Gulfport Public Works Department – Maintenance Division through Mr. Gordon Crane giving them a 10-Day advance notification.

In certain cases, there may be a need to de-energize electrical cables using facility lockout/tagout procedures to insure electrical hazards are eliminated. For this assistance from the Public Works Maintenance Division will be sought.

### **6.2.4 Water Hazards**

Planned activities involve locations that are near bodies or on bodies of water. Sampling activities will be conducted from the water edge, wading out a short distance from the shore or from a non-motorized boat. To avoid potential hazards associated with working near water (drowning), the field team shall employ lifelines (tie-off procedure), safety harnesses, when within 4 feet of the water edge.

When working out of a canoe or other boat, U.S. Coast Guard (USCG) approved personal flotation devices (PFD) will be used. Due to the obvious hazards associated with working on or near water edge during inclement weather, all field activities may be temporarily suspended or terminated at the discretion and direction of the FOL or SSO. The U.S.C.G. requires all boats to have one personal flotation device per person and a sound producing device such as an air horn or whistle which can be heard one half mile.

#### **6.2.4.1 U.S.C.G. Flotation Device Types**

Use the following information to determine the proper type of U.S.C.G. PFD.

Off Shore Life Jacket (Type I, 22 lbs buoyancy)

Type I life jacket is the best choice for rough or open waters. This type will float you the best and is favorable if rescue may be long in coming. This type will turn an unconscious person upright in the water. Though is bulky it does have a highly visible color for easier detection.

Near Shore Buoyant Vest (Type II, 15.5 lbs buoyancy)

Type II is a good choice for calmer waters. It will turn most unconscious persons face-up in the water. Though it is less bulky than Type I, it is not intended for long hours in calm or rough water.

Flotation Aid (Type III, 15.5 lbs buoyancy)

Type III is probably the most comfortable device offering more freedom of movement, such as taking water samples, but is not intended for rough water. Also, an unconscious person may end up face-down in the water.

Throwable Devices (Type IV)

Throwable devices are intended for calm waters with heavy boat traffic where help is always close. It is not intended for unconscious persons or non-swimmers or long hours in the water. They are good backups for the other devices.

All personnel shall wear Type III personal flotation devices in the event someone falls overboard, boats sinks or capsizes. Type IIIs were selected as they offer the most flexibility for working while still meeting minimum requirements for buoyancy. In situations where personal flotation devices cannot be worn due to the task to be conducted, the flotation devices shall be immediately available/accessible. It is recommended that personal flotation devices be worn at all times during colder months due to the potential for hypothermia to restrict muscle movement and therefore, self rescue and maintaining buoyancy. In addition, a single Type IV Throwable Flotation Device shall be maintained on board the boat with at least 90 feet of 3/8 polypropylene line.

When work activities take personnel within four feet of waters edge personnel will have immediately accessible a lifeline with a throwing bag or Type IV flotation device facilitate extraction from the water. All personnel working on waters edge will do so using the buddy system to assist in rescue efforts, if needed.

### **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. As previously discussed, some portions of the site include vegetated areas which increases the potential for field crews to encounter ticks, bees, mosquitoes/insects, snakes, and poisonous vegetation.

#### **6.3.1 Inclement Weather**

Project tasks under this Scope of Work will be performed outdoors. 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.

A NOAA Weather Radio is the best means to receive watches and warnings from the National Weather Service. The National Weather Service continuously broadcasts updated hurricane advisories that can be received by widely available NOAA Weather Radios.

## **7.0 HAZARD MONITORING – TYPES AND ACTION LEVELS**

Direct reading instruments will be used at the sites to evaluate the presence of detectable 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 specific hazards and tasks of an identified operation. Additionally, the Health and Safety Guidance Manual, Section 1.0, 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 (PID)**

In order to accurately monitor for any substances which may present an exposure potential to site personnel, a Photoionization Detector (PID) using a lamp energy of 10.6 eV or higher will be used. This instrument will be used to monitor potential source areas (boreholes, monitoring wells) and to screen the breathing zones of employees during site activities.

Prior to the commencement of 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 (i.e., weather, temperature, humidity) and site location must be documented in the field operations logbook or other site documentation (e.g., sample log sheet).

#### **7.1.2 Hazard Monitoring Frequency**

Table 5-1 presents the frequencies that hazard monitoring will be performed as well as the action levels which will initiate the use of elevated levels of protection. The SHSO may decide to increase these frequencies based on instrument responses and site observations. The frequency at 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 Tetra Tech NUS Equipment Manager and/or rental service employed. Operational checks and field calibration will be

performed on the instruments each day prior to their 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 standard operating procedure. Calibration efforts must be documented. Figure 7-1 is provided for documenting these calibration activities. This information may instead be recorded in a field operations logbook, provided that 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

### **7.3 DOCUMENTING INSTRUMENT READINGS**

The SHSO is responsible for ensuring that monitoring instruments are used in accordance with the specifications of this HASP and with manufacturer's specifications/recommendations. In addition, the SHSO is also responsible for ensuring that the instrument use is documented. This requirement can be satisfied either by recording instrument readings on pre-printed sampling log sheets or in a field log book. This includes the requirement for documenting instrument readings that indicate no elevated readings above noted daily background levels (i.e., no-exposure readings). At a minimum, the SHSO must document the following information for each use of an air monitoring device:

- Date, time, and duration of the reading
- Site location where the reading was obtained
- Instrument used
- Personnel present at the area where the reading was noted
- Other conditions that are considered relevant to the SHSO (such as possible instrument interferences, etc.)



## **8.0 TRAINING/MEDICAL SURVEILLANCE REQUIREMENTS**

### **8.1 INTRODUCTORY/REFRESHER/SUPERVISORY TRAINING**

This section specifies health and safety training and medical surveillance requirements for both Tetra Tech NUS and subcontractor personnel participating in on site activities. Tetra Tech NUS and subcontractor personnel who will engage in field associated activities as described in this HASP must have:

- Completed 40 hours of introductory hazardous waste site training or equivalent work experience as defined in OSHA Standard 29 CFR 1910.120(e).
- Completed 8-Hour Refresher Training, if the identified persons had introductory training more than 12 months prior to site work.
- Completed 8-hour Supervisory training in accordance with 29 CFR 1910.120(e)(4), if their assigned function will involve the supervision of subordinate personnel.

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

### **8.2 SITE-SPECIFIC TRAINING**

Tetra Tech NUS will provide site-specific training to Tetra Tech NUS employees and subcontractor personnel who will perform work on this project.

Figure 8-1 will be used to document the provision and content of the project-specific and associated training. Site personnel will be required to sign this form prior to commencement of site activities.

TtNUS will conduct a pre-activities training session prior to initiating site work. Additionally, a brief meeting will be held daily to discuss operations planned for that day. At the end of the workday, a short meeting may be held to discuss the operations completed and any problems encountered. This activity will be supported through the use of a Safe Work Permit System (See Section 10.2).

### **8.3 MEDICAL SURVEILLANCE**

Tetra Tech NUS and subcontractor personnel participating in project field activities will have had a physical examination. Physical examinations shall meet the minimum requirements of paragraph (f) of OSHA 29 CFR 1910.120.

Documentation for medical clearances will be maintained at the job site and made available, as necessary. Subcontractor personnel may use an alternative documentation for this purpose. The "Subcontractor Medical Approval Form" can be used to satisfy this requirement, or a letter from an officer of the company. The letter should state that the persons listed in the letter 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." The letter should further state the following:

- The persons listed have had physical examinations under this program within the frequency as determined sufficient by their occupational health care provider
- Date of the exam
- The persons identified have been cleared, by a licensed physician, to perform hazardous waste site work.

A sample Subcontractor Medical Approval Form and form letter have been provided to eligible subcontractors in the Bid Specification package.

### **8.3.1 Medical Data Sheets**

Each field team member, including subcontractors and visitors, entering the exclusion zone(s) shall be required to complete and submit a copy of the Medical Data Sheet that is available in Attachment IV of this HASP. This shall be provided to the SHSO, 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 EXCEPTION**

If through the execution of their contract elements the subcontractor will not enter the exclusion zone and there is no potential for exposure to site contaminants, subcontractor personnel may be exempt from the training and medical surveillance requirements with the exception of Section 8.2. Examples of subcontractors who may qualify as exempt from training and medical surveillance requirements may include surveyors who perform surveying activities in site perimeter areas or areas where there is no potential for exposure to site contaminants and support or restoration services. Use of this Subcontractor Exception is strictly limited to the authority of the CLEAN Health and Safety Manager.



## **9.0 SPILL PREVENTION AND CONTAINMENT PROGRAM**

### **9.1 SCOPE AND APPLICATION**

It is not anticipated that bulk hazardous materials (over 55-gallons) will be handled at any given time as part of this scope of work. It is also not anticipated that such spillage 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, limited soil cuttings, and purge and well development waters, in a central staging area. As needed, 55-gallon drums will be used to contain purge water, decon fluids, and soil cuttings generated during field activities. Once all fluids and other materials have been characterized, they can be removed from this area and properly disposed. Because these fluids and soils remained uncharacterized while in the staging area, a spill containment program will be developed and instituted as part of this HASP.

### **9.2 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 all IDW generated as a result of this scope of work will be containerized, labeled, and staged to await further analyses. The results of this analysis will determine the method of disposal.

### **9.3 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 staging area will be conducted during working hours to visually determine that storage vessels are not leaking. If a liquid 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, or sand, which are stored at the vulnerable areas in a conspicuously marked drum. Leaks of solid substances will be shoveled into an appropriate container. These materials will be containerized and secured for disposal pending analysis. All inspections will be documented in the project logbook.

#### **9.4 PERSONNEL TRAINING AND SPILL PREVENTION**

All personnel will be instructed in the procedures for 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.

#### **9.5 PREVENTION AND CONTAINMENT EQUIPMENT**

The following represents the minimum equipment that will be maintained 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. Department of Transportation (DOT) 17-E or 17-H; UN1A2]
- Shovels, rakes, and brooms
- Container labels

#### **9.6 SPILL CONTROL PLAN**

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

1. Notify the FOL or SSO immediately upon detection of a leak or spill.
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 2-inch of top cover (if over soils) 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, however, 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.

## **10.0 SITE OPERATIONS AND CONTROL**

Site operations and control will be facilitated through the use of established work zones and security and control of those zones. These activities will minimize the impact and spread of contaminants brought to the surface through subsurface investigative methods as well as protect personnel and visitors within these zones during ongoing operations.

### **10.1 WORK ZONES**

Tetra Tech NUS will delineate and use work zones in conjunction with decontamination procedures to prevent the spread of contaminants to other areas of the site. A three-zone approach will be used for work at this site; an Exclusion Zone, a Contamination Reduction Zone, and a Support Zone. These will be used to control access to the work areas, restricting the general public, avoiding potentials to spread any contaminants, and to protect individuals who are not cleared to enter by way of training and/or medical surveillance qualifications.

### **10.2 SAFE WORK PERMITS**

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 is included in Figure 10-1. The daily meetings conducted by the FOL/SHSO will further support these work permits. The use of these permits will ensure that site-specific considerations and changing conditions are incorporated into the planning effort. Safe Work Permits will require the signatures of either the FOL or the SHSO. Personnel engaged in on-site activities must be made aware of the elements indicating levels of protection and precautionary measures to be used.

The use of these permits will establish and provide 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 Safe Work Permit will take precedence over the HASP when more conservative measures are required based on specific site conditions.

Upon completion of the work for which the Safe Work Permit was assigned, the Safe Work Permit will be turned into the FOL or the SHSO. Concerns, complaints, and suggestions may be made on the reverse of the Safe Work Permit for consideration by the FOL and/or the SHSO. Permits turned in with suggestions, difficulties, or complaints will be forwarded to the PHSO for review.

**FIGURE 10-1  
SAFE WORK PERMIT**

Permit No. \_\_\_\_\_ Date: \_\_\_\_\_ Time: From \_\_\_\_\_ to \_\_\_\_\_

**I. Work limited to the following (description, area, equipment used):** \_\_\_\_\_

**II. Primary Hazards:** Potential hazards associated with this task include \_\_\_\_\_

**III. Field Crew:** \_\_\_\_\_

**IV. On-site Inspection conducted**  Yes  No Initials of Inspector \_\_\_\_\_ TtNUS  
**Equipment Inspection required**  Yes  No Initials of Inspector \_\_\_\_\_ TtNUS

**V. Protective equipment required** **Respiratory equipment required**  
 Level D  Level B  Yes  Specify on the reverse  
 Level C  Level A  No

Modifications/Exceptions: \_\_\_\_\_

VI. Chemicals of Concern	Hazard Monitoring	Action Level(s)	Response Measures
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

**Primary Route(s) of Exposure/Hazard:** \_\_\_\_\_

(Note to FOL and/or SHSO: Each item in Sections VII, VIII, and IX must be checked Yes, No, or NA)

**VII. 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 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/Cellular Phone.....	<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
Impermeable apron .....	<input type="checkbox"/> Yes <input type="checkbox"/> No	Work/rest regimen .....	<input type="checkbox"/> Yes <input type="checkbox"/> No
Steel toe Work shoes or boots..	<input type="checkbox"/> Yes <input type="checkbox"/> No	Chemical Resistant Boot Covers.....	<input type="checkbox"/> Yes <input type="checkbox"/> No
High Visibility vest.....	<input type="checkbox"/> Yes <input type="checkbox"/> No	Tape up/use insect repellent .....	<input type="checkbox"/> Yes <input type="checkbox"/> No
First Aid Kit .....	<input type="checkbox"/> Yes <input type="checkbox"/> No	Fire Extinguisher.....	<input type="checkbox"/> Yes <input type="checkbox"/> No
Safety Shower/Eyewash.....	<input type="checkbox"/> Yes <input type="checkbox"/> No	Other.....	<input type="checkbox"/> Yes <input type="checkbox"/> No

Modifications/Exceptions: \_\_\_\_\_

**VIII. Site Preparation**

	Yes	No	NA
Utility Locating and Excavation Clearance completed.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vehicle and Foot Traffic Routes Established/Traffic Control Barricades/Signs in Place ....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Physical Hazards Identified and Isolated (Splash and containment barriers) .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Emergency Equipment Staged (Spill control, fire extinguishers, first aid kits, etc).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**IX. Additional Permits required** (Hot work, confined space entry, excavation etc.) .....  Yes  No  
 If yes, SHSO to complete or contact Health Sciences, Pittsburgh Office (412)921-7090

**X. Special instructions, precautions:** \_\_\_\_\_

Permit Issued by: \_\_\_\_\_

Permit Accepted by: \_\_\_\_\_

The Safe Work Permit and the HASP will serve as the primary reference for work place evaluations and audits conducted to determine if the task is being conducted under the direction conveyed by the HASP and the Safe Work Permit.

### **10.3 SITE MAP**

Once the areas of contamination, access routes, topography, dispersion routes are determined, a site map will be generated and adjusted as site conditions change. This map will be posted to illustrate up-to-date information of contaminants and adjustment of zones and access points. This map will be posted at the field support trailer.

### **10.4 BUDDY SYSTEM**

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

### **10.5 MATERIAL SAFETY DATA SHEET (MSDS) REQUIREMENTS**

Tetra Tech NUS personnel will provide MSDSs for chemicals brought on-site. The contents of these documents will be reviewed by the SHSO with the user(s) of the chemical substances prior to any actual use or application of the substances on-site. The MSDSs will be maintained in a central location (i.e., temporary office) and will be available for anyone to review upon request. The SHSO will be responsible for implementing a site-specific Hazard Communication Program (See Section 5.0 of the TtNUS Health and Safety Guidance Manual). This includes collection of MSDSs, creation and maintenance of an accurate Chemical Inventory Listing, addressing container labeling and personnel training issues, and other aspects of Hazard Communication.

### **10.6 COMMUNICATION**

It is anticipated that site personnel will be working in close proximity during proposed field activities. In the event that site personnel are in isolated areas or are separated by significant distances, a supported means of communication between field crews will be utilized. Two-way radio communication devices, if needed, will be used only with NCBC Gulfport approval.

External communications will be accomplished utilizing telephones at predetermined and approved locations or through cellular phones. External communication will primarily be used for the purpose of resource and emergency resource communications. Prior to the commencement of site activities, the

FOL will determine and arrange for telephone communications, if it is determined a cellular means will not be used.

## **10.7 SITE VISITORS**

Potential site visitors that may be encountered during the performance of the field work could include the following:

- Personnel invited to observe or participate in operations by Tetra Tech NUS.
- Regulatory personnel (i.e., DOD, MDEQ, EPA, OSHA, etc.)
- NAVFAC Southeast personnel

Non-DOD personnel working on this project are required to gain initial access to the base by coordinating with the TtNUS TOM or designee and following established base access procedures.

Once access to the base is obtained, personnel who require access to Tetra Tech NUS work sites (areas of ongoing operations) will be required to obtain permission from the FOL and the Base Contact. Upon gaining access to the work site, site visitors wishing to observe operations in progress will be required to meet the minimum requirements as stipulated below.

- Site visitors will be routed to the FOL, who will sign them into the field logbook. Information to be recorded in the logbook will include the individuals name (proper identification required), who they represent, and the purpose for the visit. The FOL is responsible for ensuring that site visitors are always escorted while on site.
- Site visitors will be required to produce the necessary information supporting clearance on to the site. This includes information attesting to applicable training (40-hours of HAZWOPER training required for NAVFAC Southeast Personnel), and medical surveillance as stipulated in Section 8.3, of this document. In addition, to enter the sites operational zones during planned activities, visitors will be required to first go through site-specific training covering the topics stipulated in Section 8.2 of this HASP.

Once the site visitors have completed the above items they will be permitted to enter the site and applicable operational areas. Visitors are required to observe the protective equipment and site restrictions in effect at the work areas visited. Any 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 on-site activities to be terminated until

that visitor can be removed. Removal of unauthorized visitors will be accomplished with support from the Base Contact, if necessary. At a minimum, the Base Contact will be notified of any unauthorized visitors.

## **10.8 SITE SECURITY**

As this activity will take place at a Navy facility, the first line of security will be provided by the base gate restricting the general public. The second line of security will take place at the work site referring interested parties to the FOL and Base Contact.

Security at the work areas will be accomplished using field personnel. This is a multiple person operation, involving multiple operational zones. Tetra Tech NUS personnel will retain complete control over active operational zones. The Base Contact will serve as the focal point for base personnel and interested parties and will serve as the primary enforcement contact.

## 11.0 CONFINED SPACE ENTRY

It is not anticipated, under the proposed scope of work, that confined space and permit-required confined space activities will be conducted. **Therefore, 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 which has 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, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry).
- Is not designed for continuous employee occupancy.

A Permit-Required Confined Space is one that:

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

For further information on confined space, consult the Health and Safety Guidance Manual or call the PHSO. If confined space operations are to be performed as part of the scope of work, detailed procedures and training requirements will have to be addressed, and the HSM will have to be notified.

## 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
- Material Safety Data Sheets for chemicals brought on site, including decontamination solutions, fuels, sample preservatives, calibration gases, etc.
- A full-size OSHA Job Safety and Health Poster (posted in the site trailers)
- Training/Medical Surveillance Documentation Form (Blank)
- 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 these documents is not feasible, (such as no office trailer), these documents should be separated and immediately accessible.

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

**MSDSs (maintained)** - The MSDSs should also be in a central area accessible to site personnel. These documents should match the listings on the chemical inventory list for substances used 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 list is found within the training section of the HASP (See Figure 8-2). This list identifies site personnel, dates of training (including site-specific training), and medical surveillance. The lists 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) (posted)** - This list of numbers and directions will be maintained at the phone communications points and in each site vehicle.

**Medical Data Sheets/Cards (maintained)** - Medical Data Sheets will be filled out by on-site 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 personnel to be carried on their person.

**Hearing Conservation Standard (29 CFR 1910.95) (posted)** - this standard will be posted anytime hearing protection or other noise abatement procedures are employed.

**Personnel Monitoring (maintained)** - The results generated through personnel sampling (levels of airborne toxins, noise levels, etc.) will be posted to inform individuals of the results of that effort.

**Placards and Labels (maintained)** - Where chemical inventories have been separated because of quantities and incompatibilities, these areas will be conspicuously marked using Department of Transportation (DOT) placards and acceptable (Hazard Communication 29 CFR 1910.1200(f)) labels.

The purpose of maintaining or posting this information, as stated above, is to allow site personnel quick access. Variations concerning location and methods of presentation are acceptable, providing the objection is accomplished.

## 13.0 GLOSSARY

ACGIH	American Conference of Governmental Industrial Hygienists
APR	Air Purifying Respirators
AOC	Area of Concern
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CFR	Code of Federal Regulations
CNS	Central Nervous System
CRZ	Contamination Reduction Zone
CTO	Contract Task Order
DOD	Department of Defense
DOT	Department of Transportation
DPT	Direct-Push Technology
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
LEL/O <sub>2</sub>	Lower Explosive Limit/Oxygen
MSDS	Material Safety Data Sheet
N/A	Not Available
NAS	Naval Air Station
NIOSH	National Institute Occupational Safety and Health
OSHA	Occupational Safety and Health Administration (U.S. Department of Labor)
PEL	Permissible Exposure Limit
PHSO	Project Health and Safety Officer
PID	Photo Ionization Detector
PPE	Personal Protective Equipment
SOPs	Standard Operating Procedures
SHSO	Site Health and Safety Officer
STEL	Short Term Exposure Limit
TOM	Task Order Manager
TtNUS	Tetra Tech NUS, Inc.
TWA	Time Weighted Average
VOCs	Volatile Organic Compounds

**ATTACHMENT I**

**INJURY/ILLNESS PROCEDURE  
AND REPORT FORM**

Insert pdf of I/I form

**ATTACHMENT II**

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



TETRA TECH NUS, INC.

# STANDARD OPERATING PROCEDURES

Number	HS-1.0	Page	1 of 15
Effective Date	12/03	Revision	2
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 this policy, to present the acceptable procedures pertaining to utility locating and excavation clearance activities, and to present requirements and restrictions relevant to these types of activities. This SOP must be reviewed by any employee potentially involved with underground or overhead utility locating and avoidance activities.

## 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 and avoidance of contact with 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 initiation of any such activities on a specific project. This SOP is not intended to provide a detailed description of methodology and instrument operation. Specialized expertise during both planning and execution of several of the methods presented 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.

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#### 4.0 RESPONSIBILITIES

Project Manager (PM)/Task Order Manager (TOM) - Responsible for ensuring that all field activities are conducted in accordance with this procedure.

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. 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 and this SOP.

Site Personnel – Responsible for performing their work activities in accordance with this SOP and the TtNUS Health and Safety 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. This procedure must be followed prior to beginning any subsurface probing or 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 scars and patches, and topographical depressions. Note the location of any emergency shut off switches. Any additional information regarding utility

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locations shall be added to project maps upon completion of this exercise and returned to the PM/TOM.

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 safe and effective methods such as passive and intrusive surveys, or the use of non-conductive hand tools. Also, in situations where such hand tools are used, they should always be used in conjunction with suitable detection equipment, such as the items described in Section 6.0 of this SOP. Each method has advantages and disadvantages including complexity, applicability, and price. It also should be noted that in some 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 using a device such as a tile probe which is made of non-conductive material such as fiberglass. 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, TiNUS 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.

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## **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 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**

A variety of supplemental utility locating approaches are available and can be applied when additional assurance is needed. The selection of the appropriate method(s) to employ is site-specific and should be tailored to the anticipated conditions, site and project constraints, and personnel capabilities.

### **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.

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## **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.

## **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

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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 Excavation**

When the identification and location of underground utilities cannot be positively confirmed through document reviews and/or other methods, borings and excavations may be cleared via the use of non-conductive hand tools. This should always be done in conjunction with the use of detection equipment. This would be required for all locations where there is a potential to impact buried utilities. The minimum hand-excavation depth that must be reached is to be determined considering the geographical location of the work site. This approach recognizes that the 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 excavation depths must be at least to the frost line depth (see Attachment 2) plus two (2) feet, but never less than 4 feet below ground surface (bgs). For hand excavation, the hole created must be reamed large enough to be 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 excavation. It is important to note that a post-hole digger must not be used in this type of hand excavation activity.

### **Tile Probe Surveys**

For some soil types, site conditions, and excavation requirements, non-conductive tile probes may be used. A tile probe is a "T"-handled rod of varying lengths that can be pushed into the soil to determine if any obstructions exist at that location. Tile probes constructed of fiberglass or other nonconductive material are readily-available from numerous vendors. Tile probes must be performed to the same depth requirements as previously specified. As with other types of hand excavating activities, the use of a non-conductive tile probe, should always be in conjunction with suitable utility locating detection equipment.

## **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 surface 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. Implement supplemental utility detection techniques as necessary and appropriate to conform utility locations or the absence thereof.

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5. 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**

OSHA Letter of Interpretation, Mr. Joseph Caldwell, Attachment 4  
 OSHA 29 CFR 1926(b)(2)  
 OSHA 29 CFR 1926(b)(3)  
 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**



**American Public Works Association**  
2345 Grand Boulevard, Suite 500, Kansas City, MO 64108-2625  
Phone (816) 472-6100 • Fax (816) 472-1610  
Web www.apwa.net • E-mail apwa@apwa.net

**ONE-CALL SYSTEMS INTERNATIONAL  
CONDENSED DIRECTORY**

- |  |   |  |
|--|---|--|
| <p><b>Alabama</b><br/>Alabama One-Call<br/>1-800-292-8525</p> <p><b>Alaska</b><br/>Locate Call Center of Alaska, Inc.<br/>1-800-478-3121</p> <p><b>Arizona</b><br/>Arizona Blue Stake<br/>1-800-762-5348</p> <p><b>Arkansas</b><br/>Arkansas One Call System, Inc.<br/>1-800-482-8998</p> <p><b>California</b><br/>Underground Service Alert North<br/>1-800-227-2600<br/>Underground Service Alert of Southern<br/>California<br/>1-800-227-2600</p> <p><b>Colorado</b><br/>Utility Notification Center of Colorado<br/>1-800-922-1987</p> <p><b>Connecticut</b><br/>Call Before You Dig<br/>1-800-922-4456</p> <p><b>Delaware</b><br/>Miss Utility of Delmarva<br/>1-800-282-8555</p> <p><b>Florida</b><br/>Sunshine State One-Call of Florida, Inc.<br/>1-800-432-4770</p> <p><b>Georgia</b><br/>Underground Protection Center, Inc.<br/>1-800-282-7411</p> <p><b>Hawaii</b><br/>Underground Service Alert North<br/>1-800-227-2600</p> <p><b>Idaho</b><br/>Dig Line Inc.<br/>1-800-342-1585<br/>Kootenai County One-Call<br/>1-800-428-4950<br/>Shoshone - Benewah One-Call<br/>1-800-398-3285</p> <p><b>Illinois</b><br/>JULIE, Inc.<br/>1-800-892-0123<br/>Digger (Chicago Utility Alert Network)<br/>312-744-7000</p> <p><b>Indiana</b><br/>Indiana Underground Plant Protection<br/>Service<br/>1-800-382-5544</p> | <p><b>Iowa</b><br/>Iowa One-Call<br/>1-800-292-8989</p> <p><b>Kansas</b><br/>Kansas One-Call System, Inc.<br/>1-800-344-7233</p> <p><b>Kentucky</b><br/>Kentucky Underground Protection Inc.<br/>1-800-762-6007</p> <p><b>Louisiana</b><br/>Louisiana One Call System, Inc.<br/>1-800-272-3020</p> <p><b>Maine</b><br/>Dig Safe System, Inc.<br/>1-888-344-7233</p> <p><b>Maryland</b><br/>Miss Utility<br/>1-800-257-7777<br/>Miss Utility of Delmarva<br/>1-800-282-8555</p> <p><b>Massachusetts</b><br/>Dig Safe System, Inc.<br/>1-888-344-7233</p> <p><b>Michigan</b><br/>Miss Dig System, Inc.<br/>1-800-482-7171</p> <p><b>Minnesota</b><br/>Gopher State One Call<br/>1-800-252-1168</p> <p><b>Mississippi</b><br/>Mississippi One-Call System, Inc.<br/>1-800-227-8477</p> <p><b>Missouri</b><br/>Missouri One-Call System, Inc.<br/>1-800-344-7483</p> <p><b>Montana</b><br/>Utilities Underground Protection Center<br/>1-800-424-5555<br/>Montana One Call Center<br/>1-800-551-8344</p> <p><b>Nebraska</b><br/>Diggers Hotline of Nebraska<br/>1-800-331-5668</p> <p><b>Nevada</b><br/>Underground Service Alert North<br/>1-800-227-2600</p> <p><b>New Hampshire</b><br/>Dig Safe System, Inc.<br/>1-888-344-7233</p> | <p><b>New Jersey</b><br/>New Jersey One Call<br/>1-800-272-1000</p> <p><b>New Mexico</b><br/>New Mexico One Call System, Inc.<br/>1-800-321-2537<br/>Las Cruces- Dona Ana Blue Stakes<br/>1-888-528-0400</p> <p><b>New York</b><br/>Dig Safely New York<br/>1-800-882-7982<br/>New York City- Long Island One Call<br/>Center<br/>1-800-272-4480</p> <p><b>North Carolina</b><br/>The North Carolina One-Call Center,<br/>Inc.<br/>1-800-632-4949</p> <p><b>North Dakota</b><br/>North Dakota One-Call<br/>1-800-795-0555</p> <p><b>Ohio</b><br/>Ohio Utilities Protection Service<br/>1-800-362-2764<br/>Oil &amp; Gas Producers Underground<br/>Protect'n Svc<br/>1-800-925-0988</p> <p><b>Oklahoma</b><br/>Call Okie<br/>1-800-522-6543</p> <p><b>Oregon</b><br/>Oregon Utility Notification Center/One<br/>Call Concepts<br/>1-800-332-2344</p> <p><b>Pennsylvania</b><br/>Pennsylvania One Call System, Inc.<br/>1-800-242-1776</p> <p><b>Rhode Island</b><br/>Dig Safe System, Inc.<br/>1-888-344-7233</p> <p><b>South Carolina</b><br/>Palmetto Utility Protection Service Inc.<br/>1-888-721-7877</p> <p><b>South Dakota</b><br/>South Dakota One Call<br/>1-800-781-7474</p> <p><b>Tennessee</b><br/>Tennessee One-Call System, Inc.<br/>1-800-351-1111</p> |
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**ATTACHMENT 1 (Continued)**

**Texas**  
Texas One Call System  
1-800-245-4645  
Texas Excavation Safety System, Inc.  
1-800-344-8377  
Lone Star Notification Center  
1-800-669-8344

**Utah**  
Blue Stakes of Utah  
1-800-862-4111

**Vermont**  
Dig Safe System, Inc.  
1-888-344-7233

**Virginia**  
Miss Utility of Virginia  
1-800-552-7001  
Miss Utility (Northern Virginia)  
1-800-257-7777

**Washington**  
Utilities Underground Location Center  
1-800-424-5555  
Northwest Utility Notification Center  
1-800-553-4344  
Inland Empire Utility Coordinating  
Council  
509-456-8000

**West Virginia**  
Miss Utility of West Virginia, Inc.  
1-800-245-4848

**Wisconsin**  
Diggers Hotline, Inc.  
1-800-242-8511

**Wyoming**  
Wyoming One-Call System, Inc.  
1-800-348-1030  
Call Before You Dig of Wyoming  
1-800-849-2476

**District of Columbia**  
Miss Utility  
1-800-257-7777

**Alberta**  
Alberta One-Call Corporation  
1-800-242-3447

**British Columbia**  
BC One Call  
1-800-474-6886

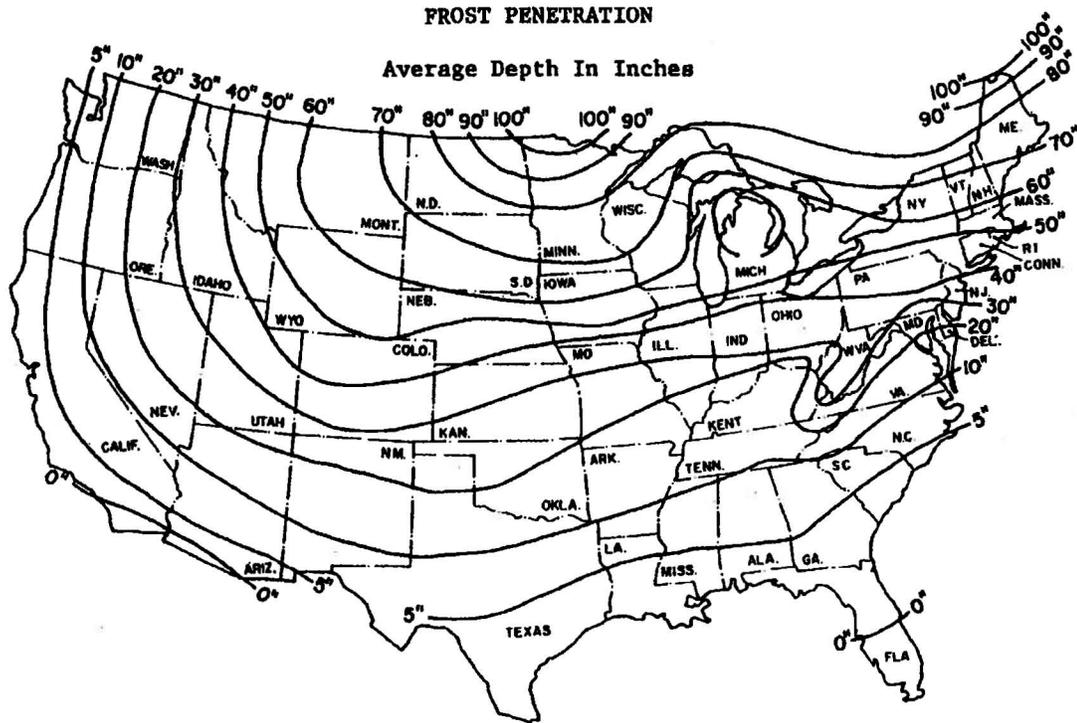
**Ontario**  
Ontario One-Call System  
1-800-400-2255

**Quebec**  
Info-Excavation  
1-800-663-9228

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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 excavation performed (with concurrent use of utility  
 detection device)? yes no N/A  
 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

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**ATTACHMENT 4  
OSHA LETTER OF INTERPRETATION**

Mr. Joseph Caldwell  
Consultant  
Governmental Liaison  
Pipeline Safety Regulations  
211 Wilson Boulevard  
Suite 700  
Arlington, Virginia 22201

Re: Use of hydro-vacuum or non-conductive hand tools to locate underground utilities.

Dear Mr. Caldwell:

In a letter dated July 7, 2003, we responded to your inquiry of September 18, 2002, regarding the use of hydro-vacuum equipment to locate underground utilities by excavation. After our letter to you was posted on the OSHA website, we received numerous inquiries that make it apparent that aspects of our July 7 letter are being misunderstood. In addition, a number of industry stakeholders, including the National Utility Contractors Association (NUCA), have provided new information regarding equipment that is available for this work.

To clarify these issues, we are withdrawing our July 7 letter and issuing this replacement response to your inquiry.

*Question: Section 1926.651 contains several requirements that relate to the safety of employees engaged in excavation work. Specifically, paragraphs (b)(2) and (b)(3) relate in part to the safety of the means used to locate underground utility installations that, if damaged during an uncovering operation, could pose serious hazards to employees.*

*Under these provisions, what constitutes an acceptable method of uncovering underground utility lines, and further, would the use of hydro-vacuum excavation be acceptable under the standard?*

**Answer**

Background

Two sections of 29 CFR 1926 Subpart P (Excavations), 1926.651 (Specific excavation requirements), govern methods for uncovering underground utility installations. Specifically, paragraph (b)(2) states:

When utility companies or owners cannot respond to a request to locate underground utility installations within 24 hours \* \* \* or cannot establish the exact location of these installations, the employer may proceed, provided the employer does so with caution, and provided detection equipment or other acceptable means to locate utility installations are used. (emphasis added).

Paragraph (b)(3) provides:

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#### ATTACHMENT 4 (Continued)

When excavation operations approach the estimated location of underground installations, the exact location of the installations shall be determined by safe and acceptable means. (emphasis added).

Therefore, "acceptable means" must be used where the location of the underground utilities have not been identified by the utility companies and detection equipment is not used.

Subpart P does not contain a definition of either "other acceptable means" or "safe and acceptable means." The preambles to both the proposed rule and the final rule discussed the rationale behind the wording at issue. For example, the preamble to the proposed rule, 52 Fed. Reg. 12301 (April 15, 1987), noted that a 1972 version of this standard contained language that specified "careful probing or hand digging" as the means to uncover utilities. The preamble then noted that an amendment to the 1972 standard later deleted that language "to allow other, *equally effective means* of locating such installations." The preamble continued that in the 1987 proposed rule, OSHA again proposed using language in section (b)(3) that would provide another example of an acceptable method of uncovering utilities that could be used where the utilities have not been marked and detection equipment is not being used – "probing with hand-held tools." This method was rejected in the final version of 29 CFR 1926. As OSHA explained in the preamble to the final rule, 54 Fed. Reg. 45916 (October 31, 1989):

OSHA received two comments \*\*\* and input from ACCSH [OSHA's Advisory Committee on Construction Safety and Health] \*\*\* on this provision. All commenters recommended dropping 'such as probing with hand-held tools' from the proposed provision, because this could create a hazard to employees by damaging the installation or its insulation.

In other words, the commenters objected to the use of hand tools being used unless detection equipment was used in conjunction with them. OSHA then concluded its discussion relative to this provision by agreeing with the commentators and ultimately not including any examples of "acceptable means" in the final provision.

#### Non-conductive hand tools are permitted

This raises the question of whether the standard permits the use of hand tools alone -- without also using detection equipment. NUCA and other industry stakeholders have recently informed us that non-conductive hand tools that are appropriate to be used to locate underground utilities are now commonly available.

Such tools, such as a "shooter" (which has a non-conductive handle and a snub nose) and non-conductive or insulated probes were not discussed in the rulemaking. Since they were not considered at that time, they were not part of the class of equipment that was thought to be unsafe for this purpose. Therefore, we conclude that the use of these types of hand tools, when used with appropriate caution, is an "acceptable means" for locating underground utilities.

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**ATTACHMENT 4 (Continued)**

Hydro-vacuum excavation

It is our understanding that some hydro-vacuum excavation equipment can be adjusted to use a minimum amount of water and suction pressure. When appropriately adjusted so that the equipment will not damage underground utilities (especially utilities that are particularly vulnerable to damage, such as electrical lines), use of such equipment would be considered a "acceptable means" of locating underground utilities. However, if the equipment cannot be sufficiently adjusted, then this method would not be acceptable under the standard.

Other technologies

We are not suggesting that these are the only devices that would be "acceptable means" under the standard. Industry stakeholders have informed us that there are other types of special excavation equipment designed for safely locating utilities as well.

We apologize for any confusion our July 7 letter may have caused. If you have further concerns or questions, please feel free to contact us again by fax at: U.S. Department of Labor, OSHA, Directorate of Construction, Office of Construction Standards and Compliance Assistance, fax # 202-693-1689. You can also contact us by mail at the above office, Room N3468, 200 Constitution Avenue, N.W., Washington, D.C. 20210, although there will be a delay in our receiving correspondence by mail.

Sincerely,

Russell B. Swanson, Director  
Directorate of Construction

**NOTE:** OSHA requirements are set by statute, standards and regulations. Our interpretation letters explain these requirements and how they apply to particular circumstances, but they cannot create additional employer obligations. This letter constitutes OSHA's interpretation of the requirements discussed. Note that our enforcement guidance may be affected by changes to OSHA rules. Also, from time to time we update our guidance in response to new information. To keep apprised of such developments, you can consult OSHA's website at <http://www.osha.gov>.

INSERT SOP HERE .PDF FORMAT

**ATTACHMENT III**  
**SAFE WORK PERMITS**

Attach Safe Work Permits here.

**ATTACHMENT IV**  
**MEDICAL DATA SHEET**

## MEDICAL DATA SHEET

This brief Medical Data Sheet will be completed by onsite personnel and visitors who are cleared and will enter defined areas of operation. The medical data sheets will be kept in a central location during the conduct of site operations. This data sheet will accompany any personnel when medical assistance is needed or if transport to hospital facilities is required.

Project: NCBC Gulfport; CTO 041 Site 3

Name: \_\_\_\_\_ Home Telephone: \_\_\_\_\_

Address: \_\_\_\_\_

Age: \_\_\_\_\_ Height: \_\_\_\_\_ Weight: \_\_\_\_\_

Name of Next Kin: \_\_\_\_\_

Telephone Numbers: Home: \_\_\_\_\_ Work: \_\_\_\_\_ Cell: \_\_\_\_\_

Address \_\_\_\_\_

Drug or other Allergies: \_\_\_\_\_

Particular Sensitivities: \_\_\_\_\_

Do You Wear Contacts? \_\_\_\_\_

Provide a Checklist of Previous Illnesses or Overexposure to Hazardous Chemicals Resulting in signs and symptoms of overexposure and/or the necessity for Medical Attention and/or First-aid: \_\_\_\_\_

Do you have any medical restrictions? \_\_\_\_\_

Past Medical History/Review of Systems (Check if you have had positive history)

- |   |   |
|---|---|
| <input type="checkbox"/> Heart Conditions (chest pains, angina, heart attacks)        | <input type="checkbox"/> Endocrine (thyroid, diabetes)                      |
| <input type="checkbox"/> Gastrointestinal Conditions (ulcers, liver, GI bleeding)     | <input type="checkbox"/> Hematological (clotting, anemia)                   |
| <input type="checkbox"/> Pulmonary (difficult breathing, coughing, asthma, pneumonia) | <input type="checkbox"/> Cancer   |
| <input type="checkbox"/> Muscular/Skeleton (arthritis, fractures, etc.)               | <input type="checkbox"/> Neurological (headache, dizzy, stroke CVA, TIA)    |
| <input type="checkbox"/> Kidney/Urological Disorder (kidney stones, renal failure)    | <input type="checkbox"/> Other (recent illnesses, weight loss, fever, etc.) |

Comments: (Please explain positive indications): \_\_\_\_\_

Immunization History: Last Tetanus Shot or Booster (Date): \_\_\_\_\_ Pneumonia Vaccination (Date): \_\_\_\_\_

Flu Vaccination (Date): \_\_\_\_\_ Other: \_\_\_\_\_

Name, Address, and Phone Number of personal physician: \_\_\_\_\_

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

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

**ATTACHMENT V**  
**EQUIPMENT INSPECTIONS**

### Equipment Inspection Checklist for Drill Rigs

Company: \_\_\_\_\_

Unit/Serial No#: \_\_\_\_\_

Inspection Date: \_\_\_\_ / \_\_\_\_ / \_\_\_\_ Time: \_\_\_\_ :

Equipment Type: \_\_\_\_\_  
(e.g, Drill Rigs Hollow Stem, Mud Rotary, Direct Push, HDD)

Project Name: \_\_\_\_\_

Project No#: \_\_\_\_\_

Yes	No	NA	Requirement	Comments
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<b>Emergency Stop Devices</b> <ul style="list-style-type: none"> <li>• Emergency Stop Devices (At points of operation)</li> <li>• Have all emergency shut offs identified been communicated to the field crew?</li> <li>• Has a person been designated as the Emergency Stop Device Operator?</li> </ul>	
<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<b>Highway Use</b> <ul style="list-style-type: none"> <li>• Cab, mirrors, safety glass?</li> <li>• Turn signals, lights, brake lights, etc. (front/rear) for equipment approved for highway use?</li> <li>• Seat Belts?</li> <li>• Is the equipment equipped with audible back-up alarms and back-up lights?</li> <li>• Horn and gauges</li> <li>• Brake condition (dynamic, park, etc.)</li> <li>• Tires (Tread) or tracks</li> <li>• Windshield wipers</li> <li>• Exhaust system</li> <li>• Steering (standard and emergency)</li> <li>• Wheel Chocks?</li> <li>• Are tools and material secured to prevent movement during transport? Especially those within the cab?</li> <li>• Are there flammables or solvents or other prohibited substances stored within the cab?</li> <li>• Are tools or debris in the cab that may adversely influence operation of the vehicle (in and around brakes, clutch, gas pedals)</li> </ul>	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<b>Fluid Levels:</b> <ul style="list-style-type: none"> <li>• Engine oil</li> <li>• Transmission fluid</li> <li>• Brake fluid</li> <li>• Cooling system fluid</li> <li>• Hoses and belts</li> <li>• Hydraulic oil</li> </ul>	

**Equipment Inspection Checklist for Drill Rigs**

Page 2

Unit/Serial No#: \_\_\_\_\_

Inspection Date: \_\_\_\_ / \_\_\_\_ / \_\_\_\_

Yes	No	NA	Requirement	Comments
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<b>High Pressure Hydraulic Lines</b> <ul style="list-style-type: none"> <li>• Obvious damage</li> <li>• Operator protected from accidental release</li> <li>• Coupling devices, connectors, retention cables/pins are in good condition and in place</li> </ul>	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<b>Mast Condition</b> <ul style="list-style-type: none"> <li>• Structural components/tubing</li> <li>• Connection points</li> <li>• Pins</li> <li>• Welds</li> <li>• Outriggers</li> <li>• Operational</li> <li>• Plumb (when raised)</li> </ul>	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<b>Hooks</b> <ul style="list-style-type: none"> <li>• Are the hooks equipped with Safety Latches?</li> <li>• Does it appear that the hook is showing signs of wear in excess of 10% original dimension?</li> <li>• Is there a bend or twist exceeding 10% from the plane of an unbent hook?</li> <li>• Increase in throat opening exceeding 15% from new condition</li> <li>• Excessive nicks and/or gouges</li> <li>• Clips</li> <li>• Number of U-Type (Crosby) Clips                      (cable size 5/16 - 5/8 = 3 clips minimum)                      (cable size 3/4 - 1 inch = 4 clips minimum)                      (cable size 1 1/8 - 1 3/8 inch = 5 clips minimum)</li> </ul>	

**Equipment Inspection Checklist for Drill Rigs**

Page 3

Unit/Serial No#: \_\_\_\_\_

Inspection Date: \_\_\_\_ / \_\_\_\_ / \_\_\_\_

Yes	No	NA	Requirement	Comments
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Power cable and/or hoist cable <ul style="list-style-type: none"> <li>• Reduction in Rope diameter <math>\pi</math>                          (5/16 wire rope &gt; 1/64 reduction nominal size -replace)                          (3/8 to 1/2 wire rope &gt; 1/32 reduction nominal size-replace)                          (9/16 to 3/4 wire rope &gt; 3/64 reduction nominal size-replace)</li> </ul>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>• Number of broken wires                          (6 randomly broken wires in one rope lay)                          (3 broken wires in one strand)</li> </ul>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>• Number of wire rope wraps left on the Running Drum at nominal use (<math>\geq 3</math> required)</li> </ul>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>- Lead (primary) sheave is centered on the running drum</li> </ul>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>• Lubrication of wire rope (adequate?)</li> </ul>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>• Kinks, bends – Flattened to &gt; 50% diameter</li> </ul>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hemp/Fiber rope (Cathead/Split Spoon Hammer) <ul style="list-style-type: none"> <li>• Minimum <math>\frac{3}{4}</math>; maximum 1 inch rope diameter (Inspect for physical damage)</li> </ul>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>• Rope to hammer is securely fastened</li> </ul>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Safety Guards – <ul style="list-style-type: none"> <li>• Around rotating apparatus (belts, pulleys, sprockets, spindles, drums, flywheels, chains) all points of operations protected from accidental contact?</li> </ul>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>• Hot pipes and surfaces exposed to accidental contact?</li> </ul>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>• High pressure lines</li> </ul>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>• Nip/pinch points</li> </ul>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Operator Qualifications <ul style="list-style-type: none"> <li>• Does the operator have proper licensing where applicable, (e.g., CDL)?</li> </ul>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>• Does the operator, understand the equipment's operating instructions?</li> </ul>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>• Is the operator experienced with this equipment?</li> </ul>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>• Is the operator 21 years of age or more?</li> </ul>	

**Equipment Inspection Checklist for Drill Rigs**  
**Page 4**

Unit/Serial No#: \_\_\_\_\_

Inspection Date: \_\_\_\_ / \_\_\_\_ / \_\_\_\_

Yes	No	NA	Requirement	Comments
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<b>PPE Required for Drill Rig Exclusion Zone</b> <ul style="list-style-type: none"> <li>• Hardhat</li> <li>• Safety glasses</li> <li>• Work gloves</li> <li>• Chemical resistant gloves _____</li> <li>• Steel toed Work Boots</li> <li>• Chemical resistant Boot Covers</li> <li>• Apron</li> <li>• Coveralls Tyvek, Saranex, cotton) _____</li> </ul>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<b>Other Hazards</b> <ul style="list-style-type: none"> <li>• Excessive Noise Levels? _____ dBA</li> <li>• Chemical hazards (Drilling supplies - Sand, bentonite, grout, fuel, etc.)               <ul style="list-style-type: none"> <li>- MSDSs available?</li> </ul> </li> <li>• Will On-site fueling occur               <ul style="list-style-type: none"> <li>- Safety cans available?</li> <li>- Fire extinguisher (Type/Rating - _____ )</li> </ul> </li> </ul>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

Approved for Use     Yes     No     See Comments

\_\_\_\_\_  
 Site Health and Safety Officer

\_\_\_\_\_  
 Operator



TETRA TECH, INC.

ACCIDENT AND ILLNESS INVESTIGATION REPORT

To: \_\_\_\_\_  
Subsidiary Health and Safety Representative

Prepared by: \_\_\_\_\_

cc: \_\_\_\_\_  
Workers Compensation Administrator

Position: \_\_\_\_\_

Project name: \_\_\_\_\_

Office: \_\_\_\_\_

Project number: \_\_\_\_\_

Telephone number: \_\_\_\_\_

Fax number: \_\_\_\_\_

**Information Regarding Injured or Ill Employee**

Name: \_\_\_\_\_

Office: \_\_\_\_\_

Home address: \_\_\_\_\_

Gender: M  F  No. of dependents: \_\_\_\_\_

\_\_\_\_\_

Marital status: \_\_\_\_\_

Home telephone number: \_\_\_\_\_

Date of birth: \_\_\_\_\_

Occupation (regular job title): \_\_\_\_\_

Social security number: \_\_\_\_\_

Department: \_\_\_\_\_

Date of Accident: \_\_\_\_\_

Time of Accident: \_\_\_\_\_ a.m.  p.m.

Time Employee Began Work: \_\_\_\_\_

Check if time cannot be determined

**Location of Incident**

Street address: \_\_\_\_\_

City, state, and zip code: \_\_\_\_\_

County: \_\_\_\_\_

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

**Information About the Incident**

**What was the employee doing just before the incident occurred?** Describe the activity as well as the tools, equipment, or material the employee was using. Be specific. Examples: "Climbing a ladder while carrying roofing materials"; "Spraying chlorine from hand sprayer"; "Daily computer key-entry"

**What Happened?** Describe how the injury occurred. Examples: "When ladder slipped on wet floor, worker fell 20 feet"; "Worker was sprayed with chlorine when gasket broke during replacement"; "Worker developed soreness in wrist over time"

This form contains information relating to employee health and must be used in a manner that protects the confidentiality of the employee to the extent possible while the information is being used for occupational safety and health purposes.



TETRA TECH, INC.

ACCIDENT AND ILLNESS INVESTIGATION REPORT (Continued)

Information About the Incident (Continued)

What was the injury or illness? Describe the part(s) of the body affected and how it was affected. Be more specific than "hurt," "pain," or "sore." Examples "Strained back"; "Chemical burn, right hand"; "Carpal tunnel syndrome, left wrist"

Describe the Object or Substance that Directly Harmed the Employee: Examples: "Concrete floor"; "Chlorine"; "Radial arm saw." If this question does not apply to the incident, write "Not applicable."

Did the employee die? Yes [ ] No [ ] Date of death: \_\_\_\_\_

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 report.

Witness (Attach additional sheets for other witnesses.)

Name: \_\_\_\_\_

Company: \_\_\_\_\_

Street address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip code: \_\_\_\_\_

Telephone number: \_\_\_\_\_

Medical Treatment Required? [ ] Yes [ ] No [ ] First aid only

Name of physician or health care professional: \_\_\_\_\_

If treatment was provided away from the work site, provide the information below.

Facility name: \_\_\_\_\_

Street address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip code: \_\_\_\_\_

Telephone number: \_\_\_\_\_

Was the employee treated in an emergency room? [ ] Yes [ ] No

Was the employee hospitalized over night as an in-patient? [ ] Yes [ ] No

This form contains information relating to employee health and must be used in a manner that protects the confidentiality of the employee to the extent possible while the information is being used for occupational safety and health purposes.



TETRA TECH, INC.

ACCIDENT AND ILLNESS INVESTIGATION REPORT (Continued)

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: \_\_\_\_\_

I have reviewed this investigation report and agree, to the best of my recollection, with its contents.

Printed Name of Injured Employee

Telephone Number

Signature of Injured Employee

Date

The signatures provided below indicate that appropriate personnel have been notified of the incident.

Title	Printed Name	Signature	Telephone Number	Date
Office Manager				
Project Manager				
Site Safety Coordinator or Office Health and Safety Representative				

This form contains information relating to employee health and must be used in a manner that protects the confidentiality of the employee to the extent possible while the information is being used for occupational safety and health purposes.



TETRA TECH, INC.

ACCIDENT AND ILLNESS INVESTIGATION REPORT (Continued)

**To Be Completed by the Subsidiary Health and Safety Representative**

**Classification of Incident:**

Injury     Illness

**Result of Incident:**

- First aid only
- Days away from work
- Remained at work but incident resulted in job transfer or work restriction
- Incident involved days away and job transfer or work restriction
- Medical treatment only

No. of days away from work \_\_\_\_\_

Date employee left work \_\_\_\_\_

Date employee returned to work \_\_\_\_\_

No. of days placed on restriction or job transfer: \_\_\_\_\_

OSHA Recordable Case Number \_\_\_\_\_

**To Be Completed by Human Resources**

Social security number: \_\_\_\_\_

Date of hire: \_\_\_\_\_ Hire date for current job: \_\_\_\_\_

Wage information: \$ \_\_\_\_\_ per  Hour  Day  Week  Month

Position at time of hire: \_\_\_\_\_

Current position: \_\_\_\_\_ 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 Carrier**

Date reported: \_\_\_\_\_ Reported by: \_\_\_\_\_

Confirmation number: \_\_\_\_\_

Name of contact: \_\_\_\_\_

Field office of claims adjuster: \_\_\_\_\_

This form contains information relating to employee health and must be used in a manner that protects the confidentiality of the employee to the extent possible while the information is being used for occupational safety and health purposes.

**TETRA TECH NUS, INC.**

**INJURY/ILLNESS PROCEDURE  
WORKER'S COMPENSATION PROGRAM**

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**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. All

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

---

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.

**SAFE WORK PERMIT**  
**MOBILIZATION AND DEMOBILIZATION**  
**SITE 3 CTO 041**  
**NCBC GULFPORT, MISSISSIPPI**

Permit No. \_\_\_\_\_ Date: \_\_\_\_\_ Time: From \_\_\_\_\_ to \_\_\_\_\_

I. **Work limited to the following (description, area, equipment used):** Mobilization / Demobilization activities.

II. **Primary Hazards:** Potential hazards associated with this task: lifting; slip, trip and falls; clearing brush; insect and animal bites

III. **Field Crew:** \_\_\_\_\_

IV. **On-site Inspection conducted**  Yes  No Initials of Inspector TtNUS  
**Equipment Inspection required**  Yes  No Initials of Inspector TtNUS

V. **Protective equipment required**

Level D  Level B   
 Level C  Level A

**Respiratory equipment required**

Yes  Specify on the reverse  
 No

Modifications/Exceptions: Minimum requirements include sleeved shirt and long pants, or coveralls, and safety footwear. Hard hats and hearing protection will be worn when working near operating equipment.

VI. Chemicals of Concern	Hazard Monitoring	Action Level(s)	Response Measures
<u>None expected during this task</u>	_____	_____	_____
_____	_____	_____	_____

Primary Route(s) of Exposure/Hazard: NA

(Note to FOL and/or SSO: Each item in Sections VII, VIII, and IX must be checked Yes, No, or NA)

VII. **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 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/Cellular Phone.....	<input type="checkbox"/> Yes <input 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 – Work ).....	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Impermeable apron.....	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Work/rest regimen .....	<input type="checkbox"/> Yes <input type="checkbox"/> No
Steel toe work shoes or boots....	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Chemical resistant boot covers.....	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
High visibility vest .....	<input type="checkbox"/> Yes <input type="checkbox"/> No	Tape up/use insect repellent .....	<input type="checkbox"/> Yes <input type="checkbox"/> No
First Aid Kit .....	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Fire extinguisher .....	<input type="checkbox"/> Yes <input type="checkbox"/> No
Safety Shower/Eyewash.....	<input type="checkbox"/> Yes <input type="checkbox"/> No	Other.....	<input type="checkbox"/> Yes <input type="checkbox"/> No

Modifications/Exceptions: Various tasks performed as part of mobilization/demobilization require additional PPE. Tasks and site conditions will determine the need for additional PPE (hard hats, safety glasses, protective gloves, hearing protection, reflective vests, etc.).

VIII. **Site Preparation**

	Yes	No	NA
Utility Locating and Excavation Clearance completed.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vehicle and Foot Traffic Routes Established/Traffic Control Barricades/Signs in Place.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Physical Hazards Identified and Isolated (Splash and containment barriers) .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Emergency Equipment Staged (Spill control, fire extinguishers, first aid kits, etc).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

IX. **Additional Permits required** (Hot work, confined space entry, excavation etc.).....  Yes  No  
*If yes, SSO to complete or contact Health Sciences, Pittsburgh Office (412)921-7090*

X. **Special instructions, precautions:** Use safe lifting/carrying techniques. Use additional PPE based on the hazards that are associated with each task. Reflective vests will be used when working near roadways or areas of operating vehicles/equipment. Identify/remove potential physical hazards and mark areas or hazards that cannot be removed. Keep work area free of ground clutter.

Permit Issued by: \_\_\_\_\_ Permit Accepted by: \_\_\_\_\_

**SAFE WORK PERMIT**  
**PASSIVE GAS SAMPLING**  
**SITE 3 CTO 041**  
**NCBC GULFPORT, MISSISSIPPI**

Permit No. \_\_\_\_\_ Date: \_\_\_\_\_ Time: From \_\_\_\_\_ to \_\_\_\_\_

I. Work limited to the following (description, area, equipment used): Passive gas sampling

II. Primary Hazards: contact with utility; slip, trip, and falls; ambient temperature extremes; insect/animal bites and stings, poisonous plants, inclement weather.

III. Field Crew: \_\_\_\_\_

IV. On-site Inspection conducted  Yes  No Initials of Inspector \_\_\_\_\_ TtNUS  
 Equipment Inspection required  Yes  No Initials of Inspector \_\_\_\_\_ TtNUS

V. Protective equipment required

Level D  Level B   
 Level C  Level A

Modifications/Exceptions: \_\_\_\_\_

Respiratory equipment required

Yes  Specify on the reverse  
 No

VI. Chemicals of Concern	Hazard Monitoring	Action Level(s)	Response Measures
None			

Primary Route(s) of Exposure/Hazard: Inhalation of airborne vapors or dusts is most likely route of exposure – though unlikely to be present. Incidental ingestion and contact with contaminants will be prevented through the use of PPE and safe work practices.

(Note to FOL and/or SSO: Each item in Sections VII, VIII, and IX must be checked Yes, No, or NA)

VII. Additional Safety Equipment/Procedures

Hard-hat.....	<input type="checkbox"/> Yes <input 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/Cellular Phone.....	<input type="checkbox"/> Yes <input type="checkbox"/> No
Splash Shield.....	<input type="checkbox"/> Yes <input checked="" 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 – Nitrile).....	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Impermeable Apron .....	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Work/rest regimen .....	<input type="checkbox"/> Yes <input type="checkbox"/> No
Steel Toe Work Shoes or Boots.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Chemical Resistant Boot Covers ....	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
High Visibility Vest .....	<input type="checkbox"/> Yes <input type="checkbox"/> No	Tape/Insect Repellent .....	<input type="checkbox"/> Yes <input type="checkbox"/> No
First Aid Kit .....	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Fire Extinguisher.....	<input type="checkbox"/> Yes <input type="checkbox"/> No
Safety Shower/Eyewash.....	<input type="checkbox"/> Yes <input type="checkbox"/> No	Other.....	<input type="checkbox"/> Yes <input type="checkbox"/> No

Modifications/Exceptions: \_\_\_\_\_

VIII. Site Preparation

	Yes	No	NA
Utility Locating and Excavation Clearance completed .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vehicle and Foot Traffic Routes Established/Traffic Control Barricades/Signs in Place.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Physical Hazards Identified and Isolated (Splash and containment barriers) .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Emergency Equipment Staged (Spill control, fire extinguishers, first aid kits, etc).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

IX. Additional Permits required (Hot work, confined space entry, excavation etc.).....  Yes  No  
 If yes, SSO to complete or contact Health Sciences, Pittsburgh Office (412)921-7090

X. Special instructions, precautions: Use safe lifting/carrying techniques. Assume media is contaminated and avoid contact through the use of safe work practices, PPE and decontamination.

Permit Issued by: \_\_\_\_\_ Permit Accepted by: \_\_\_\_\_

**SAFE WORK PERMIT**  
**SOIL BORING**  
**SITE 3 CTO 041**  
**NCBC GULFPORT, MISSISSIPPI**

Permit No. \_\_\_\_\_ Date: \_\_\_\_\_ Time: From \_\_\_\_\_ to \_\_\_\_\_

- I. **Work limited to the following (description, area, equipment used):** Subsurface soil sample collected via Direct Push Technology (DPT).
- II. **Primary Hazards:** Potential hazards associated with this task: contact with site contaminants; transfer of contamination; heavy equipment hazards; elevated noise; energized systems/utilities; heavy lifting; slip, trip and fall; vehicular and foot traffic; ambient temperature extremes; cuts and lacerations, inclement weather
- III. **Field Crew:** \_\_\_\_\_
- IV. **On-site Inspection conducted**  Yes  No Initials of Inspector \_\_\_\_\_ TtNUS  
**Equipment Inspection required**  Yes  No Initials of Inspector \_\_\_\_\_ TtNUS

- V. **Protective equipment required**  Level D  Level B   
 Level C  Level A   
**Respiratory equipment required** Yes  Specify on the reverse  
No
- Modifications/Exceptions: \_\_\_\_\_

VI. Chemicals of Concern	Hazard Monitoring	Action Level(s)	Response Measures
TPH's and BTEX	PID with a 10.6 ev lamp	Sustained readings greater than background levels	Retreat to an unaffected area contact the PHSO
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

**Primary Route(s) of Exposure/Hazard:** Inhalation of airborne vapors or dusts is most likely route of exposure – though unlikely to be present. Incidental ingestion and contact with contaminants will be prevented through the use of PPE and safe work practices.

**(Note to FOL and/or SSO: Each item in Sections VII, VIII, and IX must be checked Yes, No, or NA)**

**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/Cellular Phone..... <input type="checkbox"/> Yes <input type="checkbox"/> No                        |
| Splash shield ..... <input type="checkbox"/> Yes <input checked="" 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 – nitrile/work )..... <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No    |
| Impermeable apron..... <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No           | Work/rest regimen ..... <input type="checkbox"/> Yes <input type="checkbox"/> No                          |
| Steel toe work shoes or boots... <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Chemical resistant boot covers..... <input type="checkbox"/> Yes <input type="checkbox"/> No              |
| High visibility vest ..... <input type="checkbox"/> Yes <input type="checkbox"/> No                  | Tape up/use insect repellent ..... <input type="checkbox"/> Yes <input type="checkbox"/> No               |
| First Aid Kit ..... <input type="checkbox"/> Yes <input type="checkbox"/> No                         | Fire extinguisher ..... <input type="checkbox"/> Yes <input type="checkbox"/> No                          |
| Safety Shower/Eyewash..... <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No       | Other..... <input type="checkbox"/> Yes <input type="checkbox"/> No                                       |

Modifications/Exceptions: Coveralls if the potential for soiling work clothing exists or if free product is encountered. Other PPE is possible based on conditions (rain gear, rubber boots, etc.)

**VIII. Site Preparation**

- |   | Yes                      | No                       | NA                       |
|---|--------------------------|--------------------------|--------------------------|
| Utility Locating and Excavation Clearance completed .....                                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Vehicle and Foot Traffic Routes Established/Traffic Control Barricades/Signs in Place ..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Physical Hazards Identified and Isolated (Splash and containment barriers) .....            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Emergency Equipment Staged (Spill control, fire extinguishers, first aid kits, etc).....    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

- IX. **Additional Permits required** (Hot work, confined space entry, excavation etc.).....  Yes  No  
*If yes, SSO to complete or contact Health Sciences, Pittsburg Office (412)921-7090*

- X. **Special instructions, precautions:** Use safe lifting/carrying techniques. Inspect equipment prior to use. Ensure emergency stop devices are functional and test daily.

Permit Issued by: \_\_\_\_\_ Permit Accepted by: \_\_\_\_\_

**SAFE WORK PERMIT**  
**MULTI MEDIA SAMPLING**  
**SITE 3 CTO 041**  
**NCBC GULFPORT, MISSISSIPPI**

Permit No. \_\_\_\_\_ Date: \_\_\_\_\_ Time: From \_\_\_\_\_ to \_\_\_\_\_

- I. **Work limited to the following (description, area, equipment used):** Multimedia sampling including: surface water and sediment, surface and subsurface soils, Groundwater and IDW. This task includes mobile lab support onsite.
- II. **Primary Hazards:** Potential hazards associated with this task: contact with site contaminants; transfer of contamination; slip, trip and fall; inclement weather cuts and laceration; site characterization; vehicle and foot traffic.

- III. **Field Crew:** \_\_\_\_\_
- IV. **On-site Inspection conducted**  Yes  No Initials of Inspector \_\_\_\_\_ TtNUS  
**Equipment Inspection required**  Yes  No Initials of Inspector \_\_\_\_\_ TtNUS

- V. **Protective equipment required** **Respiratory equipment required**
- Level D  Level B  Yes  Specify on the reverse  
Level C  Level A  No

Modifications/Exceptions: \_\_\_\_\_

VI. Chemicals of Concern	Hazard Monitoring	Action Level(s)	Response Measures
TPH's and BTEX	PID with a 10.6 ev lamp	Sustained readings greater than background levels	Retreat to an unaffected area contact the PHSO
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

**Primary Route(s) of Exposure/Hazard:** Inhalation of airborne vapors or dusts is most likely route of exposure – though unlikely to be present. Incidental ingestion and contact with contaminants will be prevented through the use of PPE and safe work practices.

(Note to FOL and/or SSO: Each item in Sections VII, VIII, and IX must be checked Yes, No, or NA)

**VII. 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/Cellular Phone..... <input type="checkbox"/> Yes <input type="checkbox"/> No                      |
| Splash Shield..... <input type="checkbox"/> Yes <input checked="" 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 – Nitrile)..... <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No        |
| Impermeable Apron ..... <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No        | Work/rest regimen ..... <input type="checkbox"/> Yes <input type="checkbox"/> No                        |
| Steel Toe Work Shoes or Boots. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Chemical Resistant Boot Covers .... <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| High Visibility Vest ..... <input type="checkbox"/> Yes <input type="checkbox"/> No                | Tape/Insect Repellent ..... <input type="checkbox"/> Yes <input type="checkbox"/> No                    |
| First Aid Kit ..... <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No            | Fire Extinguisher..... <input type="checkbox"/> Yes <input type="checkbox"/> No                         |
| Safety Shower/Eyewash..... <input type="checkbox"/> Yes <input type="checkbox"/> No                | Other..... <input type="checkbox"/> Yes <input type="checkbox"/> No                                     |
- Modifications/Exceptions: \_\_\_\_\_

**VIII. Site Preparation**

- |  | Yes                      | No                       | NA                       |
|--|--------------------------|--------------------------|--------------------------|
| Utility Locating and Excavation Clearance completed.....                                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Vehicle and Foot Traffic Routes Established/Traffic Control Barricades/Signs in Place..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Physical Hazards Identified and Isolated (Splash and containment barriers) .....           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Emergency Equipment Staged (Spill control, fire extinguishers, first aid kits, etc).....   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

- IX. **Additional Permits required** (Hot work, confined space entry, excavation etc.).....  Yes  No  
*If yes, SSO to complete or contact Health Sciences, Pittsburgh Office (412)921-7090*

- X. **Special instructions, precautions:** Use safe lifting/carrying techniques. Assume media is contaminated and avoid contact through the use of safe work practices, PPE and decontamination.

Permit Issued by: \_\_\_\_\_ Permit Accepted by: \_\_\_\_\_

**SAFE WORK PERMIT**  
**DECONTAMINATION ACTIVITIES**  
**SITE 3 CTO 041**  
**NCBC GULFPORT, MISSISSIPPI**

Permit No. \_\_\_\_\_ Date: \_\_\_\_\_ Time: From \_\_\_\_\_ to \_\_\_\_\_

- I. **Work limited to the following (description, area, equipment used):** Decontamination of the sampling and heavy equipment
- II. **Primary Hazards:** Potential hazards associated with this task: contact with site contaminants; decontamination fluids; elevated noise; heavy lifting; slip, trip and fall; flying projectiles; inclement weather; ambient temperature extremes
- III. **Field Crew:** \_\_\_\_\_
- IV. **On-site Inspection conducted**  Yes  No Initials of Inspector \_\_\_\_\_ TtNUS  
**Equipment Inspection required**  Yes  No Initials of Inspector \_\_\_\_\_ TtNUS

- V. **Protective equipment required**  Level D  Level B   
 Level C  Level A   
Modifications/Exceptions: \_\_\_\_\_
- Respiratory equipment required**  
Yes  Specify on the reverse  
No

VI. Chemicals of Concern	Hazard Monitoring	Action Level(s)	Response Measures
<u>TPH's and BTEX</u>	<u>PID with a 10.6 ev lamp</u>	<u>Sustained readings greater than background levels</u>	<u>Retreat to an unaffected area contact the PHSO</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

**Primary Route(s) of Exposure/Hazard:** Inhalation of airborne vapors or dusts is most likely route of exposure – though unlikely to be present. Incidental ingestion and contact with contaminants will be prevented through the use of PPE and safe work practices.

(Note to FOL and/or SSO: Each item in Sections VII, VIII, and IX must be checked Yes, No, or NA)

**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/Cellular Phone.....             | <input type="checkbox"/> Yes <input 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 |
| Impermeable apron.....             | <input type="checkbox"/> Yes <input type="checkbox"/> No            | Work/rest Regimen.....                | <input type="checkbox"/> Yes <input type="checkbox"/> No            |
| Steel Toe Work Shoes or Boots..... | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Chemical Resistant Boot Covers.....   | <input type="checkbox"/> Yes <input type="checkbox"/> No            |
| High Visibility Vest .....         | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | Tape/Insect Repellent .....           | <input type="checkbox"/> Yes <input type="checkbox"/> No            |
| First Aid Kit .....                | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Fire Extinguisher.....                | <input type="checkbox"/> Yes <input type="checkbox"/> No            |
| Safety Shower/Eyewash.....         | <input type="checkbox"/> Yes <input type="checkbox"/> No            | Other.....                            | <input type="checkbox"/> Yes <input type="checkbox"/> No            |

Modifications/Exceptions: For sampling equipment the splash shield, splash suits/coveralls, hearing protection are not required.

**VIII. Site Preparation**

- |  | Yes                      | No                       | NA                       |
|--|--------------------------|--------------------------|--------------------------|
| Utility Locating and Excavation Clearance completed.....                                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Vehicle and Foot Traffic Routes Established/Traffic Control Barricades/Signs in Place..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Physical Hazards Identified and Isolated (Splash and containment barriers).....            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Emergency Equipment Staged (Spill control, fire extinguishers, first aid kits, etc).....   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

- IX. **Additional Permits required** (Hot work, confined space entry, excavation etc.).....  Yes  No  
*If yes, SSO to complete or contact Health Sciences, Pittsburgh Office (412)921-7090*

- X. **Special instructions, precautions:** Review and follow the instructions on the MSDS for the decontamination fluids. Follow guidance in Table 5-1 for PPE for different decontamination tasks.

Permit Issued by: \_\_\_\_\_ Permit Accepted by: \_\_\_\_\_

**SAFE WORK PERMIT**  
**GEOGRAPHICAL SURVEYING ACTIVITIES**  
**SITE 3 CTO 041**  
**NCBC GULFPORT, MISSISSIPPI**

Permit No. \_\_\_\_\_ Date: \_\_\_\_\_ Time: From \_\_\_\_\_ to \_\_\_\_\_

- I. **Work limited to the following (description, area, equipment used):** Geographical surveying activities
- II. **Primary Hazards:** Potential hazards associated with this task: slip, trip and fall; struck by; inclement weather; insect /animal bites or stings, poisonous plants, etc.
- III. **Field Crew:** \_\_\_\_\_
- IV. **On-site Inspection conducted**  Yes  No Initials of Inspector TtNUS  
**Equipment Inspection required**  Yes  No Initials of Inspector TtNUS

- V. **Protective equipment required**  Level D  Level B  Level C  Level A
- Respiratory equipment required** Yes  Specify on the reverse  
 No
- Modifications/Exceptions: \_\_\_\_\_

VI. Chemicals of Concern	Hazard Monitoring	Action Level(s)	Response Measures
<u>None expected during this task</u>	_____	_____	_____
_____	_____	_____	_____

Primary Route(s) of Exposure/Hazard: \_\_\_\_\_

(Note to FOL and/or SSO: Each item in Sections VII, VIII, and IX must be checked Yes, No, or NA)

- VII. **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 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/Cellular Phone..... <input type="checkbox"/> Yes <input 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 type="checkbox"/> No                 | Gloves (Type – Work )..... <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No            |
| Impermeable apron..... <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No            | Work/rest regimen ..... <input type="checkbox"/> Yes <input type="checkbox"/> No                          |
| Steel toe work shoes or boots.... <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Chemical Resistant Boot Covers .... <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No   |
| High Visibility vest..... <input type="checkbox"/> Yes <input type="checkbox"/> No                    | Tape up/use insect repellent ..... <input type="checkbox"/> Yes <input type="checkbox"/> No               |
| First Aid Kit ..... <input type="checkbox"/> Yes <input type="checkbox"/> No                          | Fire Extinguisher..... <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No                |
| Safety Shower/Eyewash..... <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No        | Other..... <input type="checkbox"/> Yes <input type="checkbox"/> No                                       |
- Modifications/Exceptions: Snake chaps in high brush areas

- VIII. **Site Preparation**
- |  | Yes                      | No                       | NA                       |
|--|--------------------------|--------------------------|--------------------------|
| Utility Locating and Excavation Clearance completed.....                                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Vehicle and Foot Traffic Routes Established/Traffic Control Barricades/Signs in Place..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Physical Hazards Identified and Isolated (Splash and containment barriers) .....           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Emergency Equipment Staged (Spill control, fire extinguishers, first aid kits, etc).....   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

- IX. **Additional Permits required** (Hot work, confined space entry, excavation etc.).....  Yes  No  
*If yes, SSO to complete or contact Health Sciences, Pittsburgh Office (412)921-7090*

X. **Special instructions, precautions:** \_\_\_\_\_

Permit Issued by: \_\_\_\_\_ Permit Accepted by: \_\_\_\_\_

**SAFE WORK PERMIT**  
**IDW MANAGEMENT**  
**SITE 3 CTO 041**  
**NCBC GULFPORT, MISSISSIPPI**

Permit No. \_\_\_\_\_ Date: \_\_\_\_\_ Time: From \_\_\_\_\_ to \_\_\_\_\_

**II. Primary Hazards:** Potential hazards associated with this task: strains and sprains, loading bulk transport containers.

**III. Field Crew:** \_\_\_\_\_

**IV. On-site Inspection conducted**  Yes  No Initials of Inspector \_\_\_\_\_ TtNUS  
**Equipment Inspection required**  Yes  No Initials of Inspector \_\_\_\_\_ TtNUS

**V. Protective equipment required**

Level D  Level B   
 Level C  Level A

**Respiratory equipment required**

Yes  Specify on the reverse  
 No

Modifications/Exceptions: \_\_\_\_\_

VI. Chemicals of Concern	Hazard Monitoring	Action Level(s)	Response Measures
<u>TPH's and BTEX</u>	<u>PID with a 10.6 ev lamp</u>	<u>Sustained readings greater than background levels</u>	<u>Retreat to an unaffected area contact the PHSO</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

**Primary Route(s) of Exposure/Hazard:** Inhalation of airborne vapors or dusts is most likely route of exposure -- though unlikely to be present. Incidental ingestion and contact with contaminants will be prevented through the use of PPE and safe work practices.

(Note to FOL and/or SSO: Each item in Sections VII, VIII, and IX must be checked Yes, No, or NA)

**VII. 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 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/Cellular Phone.....	<input type="checkbox"/> Yes <input 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 type="checkbox"/> No	Gloves (Type – Work/nitrile ) .....	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Impermeable apron.....	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Work/rest regimen .....	<input type="checkbox"/> Yes <input type="checkbox"/> No
Steel toe work shoes or boots....	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Chemical Resistant Boot Covers ....	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
High Visibility vest.....	<input type="checkbox"/> Yes <input type="checkbox"/> No	Tape up/use insect repellent .....	<input type="checkbox"/> Yes <input type="checkbox"/> No
First Aid Kit .....	<input type="checkbox"/> Yes <input type="checkbox"/> No	Fire Extinguisher.....	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Safety Shower/Eyewash.....	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Other.....	<input type="checkbox"/> Yes <input type="checkbox"/> No

Modifications/Exceptions: \_\_\_\_\_

**VIII. Site Preparation**

	Yes	No	NA
Utility Locating and Excavation Clearance completed.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vehicle and Foot Traffic Routes Established/Traffic Control Barricades/Signs in Place.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Physical Hazards Identified and Isolated (Splash and containment barriers) .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Emergency Equipment Staged (Spill control, fire extinguishers, first aid kits, etc).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**IX. Additional Permits required** (Hot work, confined space entry, excavation etc.).....  Yes  No

*If yes, SSO to complete or contact Health Sciences, Pittsburgh Office (412)921-7090*

**X. Special instructions, precautions:** Inspect drums used to store IDW prior to use. Cover IDW containers to prevent unauthorized entry and infiltration of precipitation. Use proper lifting practices and obtain assistance when handling heavy drums. Use equipment whenever possible to move heavy items.

Permit Issued by: \_\_\_\_\_ Permit Accepted by: \_\_\_\_\_