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HEALTH AND SAFETY PLAN FOR NATURAL ATTENUATION MONITORING ACTIVITIES AT
FLEET INDUSTRIAL SUPPLY CENTER NS MAYPORT FL
11/1/2006
TETRA TECH NUS

Comprehensive Long-term Environmental Action Navy

CONTRACT NUMBER N62467-04-D-0055



Health and Safety Plan for Natural Attenuation Monitoring Activities at Fleet Industrial Supply Center (FISC)

Naval Station Mayport
Mayport, Florida

Contract Task Order 0031

November 2006



Southeast

2155 Eagle Drive

North Charleston, South Carolina 29406

HEALTH AND SAFETY PLAN
FOR
NATURAL ATTENUATION MONITORING ACTIVITIES
AT
FLEET INDUSTRIAL SUPPLY CENTER (FISC)

NAVAL STATION MAYPORT
MAYPORT, FLORIDA

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

Submitted to:
Naval Facilities Engineering Command
Southeast
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CONTRACT NUMBER N62467-04-D-0055
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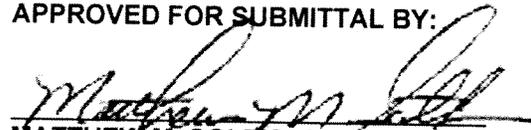
NOVEMBER 2006

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1.0 INTRODUCTION

This Health and Safety Plan (HASP) has been developed to provide practices and procedures for Tetra Tech NUS, Inc. (TtNUS) personnel engaged in natural attenuation monitoring activities at the Naval Station in Mayport, Florida (NAVSTA Mayport). Project activities will be conducted at Fleet Industrial Supply Center (FISC). This work is authorized under the Comprehensive Long - Term Environmental Action Navy (CLEAN) contract, administered through the U.S. Navy Naval Facilities Engineering Command, Southeast as defined under Contract No. N62467-04-D-0055; Contract Task Order Number 0031. This HASP must be used in conjunction with the TtNUS Health and Safety Guidance Manual. Both of these documents must be present at the site during the performance of site activities. The Guidance Manual provides detailed information pertaining to the HASP as well as applicable TtNUS Standard Operating Procedures (SOPs). This HASP and the contents of the Guidance Manual were developed to comply with the requirements stipulated in 29 CFR 1910.120 (OSHA's Hazardous Waste Operations and Emergency Response Standard).

This HASP has been developed using the latest available information regarding known or suspected chemical contaminants and potential physical hazards associated with the proposed work at the site. The HASP will be modified if new information becomes available. Changes to the HASP will be made with the approval of the TtNUS Project Health and Safety Officer (PHSO) and the TtNUS Health and Safety Manager (HSM). Requests for modifications to the HASP will be directed to the PHSO, who will determine if the changes are necessary. The PHSO will notify the Task Order Manager (TOM), who will notify the affected personnel of changes.

1.1 KEY PROJECT PERSONNEL AND ORGANIZATION

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

- The TtNUS TOM is responsible for the overall direction of health and safety for this project.
- The 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.

- ii. Establishing air monitoring and decontamination procedures.
 - iii. Assigning personal protective equipment based on task and potential hazards.
 - iv. Determining emergency response procedures and emergency contacts.
 - v. Stipulating training requirements and reviewing appropriate training and medical surveillance certificates.
 - vi. Providing standard work practices to minimize potential injuries and exposures associated with hazardous waste work.
 - vii. Modify 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 SSO. The FOL manages field activities, executes the work plan, and enforces safety procedures as applicable to the work plan.
 - The SSO supports site activities by advising the FOL on the aspects of health and safety on site. These duties may include:
 - i. Coordinates the 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 onsite activities.
 - v. Verifies training and medical clearance of onsite 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 emergency services.
 - viii. Provides site-specific training for onsite 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, at the NAVSTA Mayport, the FOL may also be responsible for SSO duties. This action will be performed only as credentials or experience permits.

1.2 SITE INFORMATION AND PERSONNEL ASSIGNMENTS

Site Name: Naval Station
Mayport, Florida

Client Contact: Diane Racine
Phone Number: (904) 270-6730 ext 208

NAVFAC SE Contact: Adrienne Wilson
Phone Number: (843) 820-5582

Scheduled Activities: This activity will be divided into a multi-task operation, including specifically the task of groundwater sampling. Further detail on this and other site tasks can be found in Section 4 of this HASP.

Dates of scheduled activities: Site activities are expected to begin in November 2006 and continue quarterly for one year.

Project Team:

TtNUS Personnel:

Mark Peterson, P.G.

David Siefken

Matthew M. Soltis, CIH, CSP

James K. Laffey

David Siefken

Discipline/Tasks Assigned:

Task Order Manager (TOM)

Field Operations Leader (FOL)

CLEAN Health and Safety Manager (HSM)

Project Health and Safety Officer (PHSO)

Site Safety Officer (SSO)

Non-TtNUS Personnel:

TBD

TBD

Affiliation/Discipline/Tasks Assigned:

Excavation Contractor

Competent Person

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

James K. Laffey

2.0 EMERGENCY ACTION PLAN

2.1 INTRODUCTION

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

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

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

2.2 EMERGENCY PLANNING

Through the initial hazard/risk assessment effort, emergencies resulting from chemical, physical, or fire hazards are considered to be unlikely to be encountered during site activities. Nonetheless, to minimize and eliminate the potential for any emergency situations, emergency planning activities will include the following (which are the responsibility of the SSO and/or the FOL):

- Coordinating with local Emergency Response personnel to ensure that TtNUS emergency action activities are compatible with existing emergency response procedures. Base Fire Protection and

Emergency Services will be notified of scheduled events and activities. This is most imperative in situations where their services may be required.

- Establishing and maintaining information at the project staging area (Support Zone) for easy access in the event of an emergency. This information will include the following:
 - Chemical Inventory (of chemicals used onsite), with Material Safety Data Sheets.
 - Onsite personnel medical records (Medical Data Sheets).
 - A log book identifying personnel onsite each day.
 - Hospital route maps with directions (these should also be placed in each site vehicle).
 - Emergency Notification - phone numbers.

The TtNUS FOL will be responsible for the following tasks:

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

2.3 EMERGENCY RECOGNITION AND PREVENTION

2.3.1 Recognition

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

will be responsible for reporting hazardous situations. Where potential hazards exist, TtNUS will initiate control measures to prevent adverse effects to human health and the environment.

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

2.3.2 Prevention

TtNUS personnel will minimize the potential for emergencies by following the Health and Safety Guidance Manual and ensuring compliance with the HASP and applicable OSHA regulations. Daily site surveys of work areas, prior to the commencement of that day's activities, by the FOL and/or the SSO will also assist in prevention of illness/injuries when hazards are recognized early and control measures initiated.

2.4 EVACUATION ROUTES, PROCEDURES, AND PLACES OF REFUGE

An evacuation will be initiated whenever recommended hazard controls are insufficient to protect the health, safety or welfare of site workers. Specific examples of conditions that may initiate an evacuation include, but are not limited to the following: severe weather conditions; fire or explosion; monitoring instrumentation readings which indicate levels of contamination are greater than instituted action levels; and evidence of personnel overexposure to potential site contaminants.

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

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

2.5 DECONTAMINATION PROCEDURES / EMERGENCY MEDICAL TREATMENT

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

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

2.6 EMERGENCY CONTACTS

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

**TABLE 2-1
EMERGENCY REFERENCE
NAVAL STATION
MAYPORT, FLORIDA**

AGENCY	TELEPHONE
EMERGENCY	911
Fire Department	(904) 270-5333
Base Security	(904) 270-5583 or 5584
Base Medical Clinic (For life threatening emergencies only)	(904) 270-5444
Memorial Health Care Center (for other emergencies)	(904) 858-7500
Base Safety Department	(904) 270-5218
Site Point of Contact, Diane Racine	(904) 270-6730
NAVFAC SE Point of Contact, Adrienne Wilson	(843) 820-5582
Public Works Trouble Desk (for problems with utilities)	(904) 542-2122
National Response Center	(800) 424-8802
Chemtrec	(800) 424-9300
Poison Control Center	(800) 222-1222
Task Order Manager, TBD	(850) 656-5458
Health and Safety Manager, Matthew M. Soltis, CIH, CSP	(412) 921-8912
Project Health and Safety Officer, James K. Laffey	(412) 921-8678

When calling base telephone numbers from within the Base (i.e., from an on-base telephone), dial a zero (0) and the last four digits of the telephone number. For example, to contact the Base Medical Clinic dial 05444.

2.7 EMERGENCY ROUTE TO HOSPITAL

For emergency care only, non-Navy personnel are permitted to go to the Base Medical Center.:

Branch Medical Clinic
NAVSTA Mayport
Mayport, FL 32228

The Base Medical Clinic should be used for life-threatening emergencies only. It is located in Building 1363 on Massey Avenue.

For non-emergency care services:

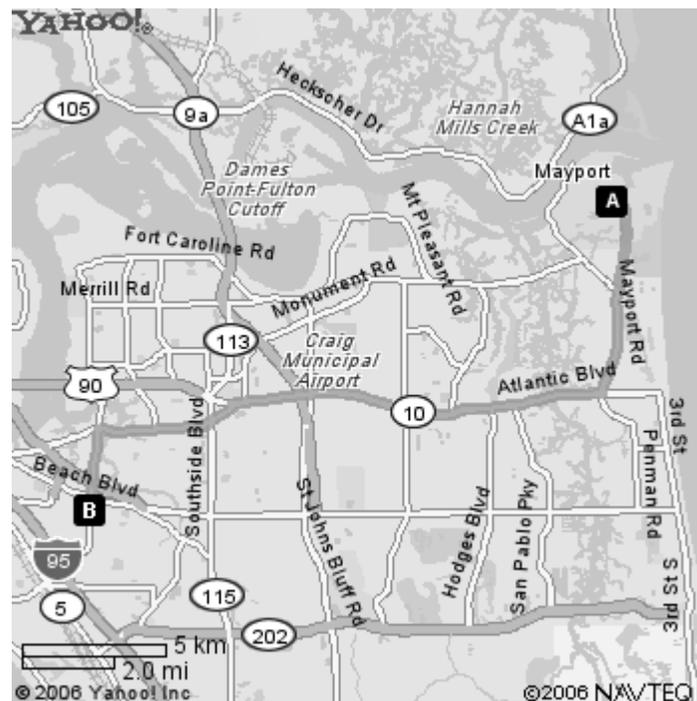
Memorial Hospital Jacksonville
3625 University Blvd. South.
Jacksonville, FL 32216
Telephone: (904) 399-6111

Memorial Health Care Center will be used for medical care beyond basic first aid treatment. Directions to the Center: Exit base, take Mayport Road (A1A) to Atlantic Blvd.

Take a right onto Atlantic Blvd. across the Intercoastal Waterway go 10 miles. Turn left on University Blvd and go 1.8 miles. The hospital is on the left. See Figure 2-1 "Route to Memorial Health Care Center".

FIGURE 2-1

ROUTE TO MEMORIAL HEALTH CARE CENTER



2.8 EMERGENCY ALERTING AND ACTION/RESPONSE PROCEDURES

TtNUS personnel will be working in close proximity to each other at NAVSTA Mayport. 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 (outside services) 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.

2.9 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 bloodborne pathogens will also be available on site. Personnel identified within the field crew with bloodborne pathogen and first-aid training will be the only personnel permitted to offer first-aid assistance.

As soon as possible Navy contact Diane Racine must be informed of any incident or accident that requires medical attention.

Any pertinent information regarding allergies to medications or other special conditions will be provided to medical services personnel. This information is listed on Medical Data Sheets filed onsite. If an exposure to hazardous materials has occurred, provide hazard information from Table 6-1 to medical service personnel.

FIGURE 2-2 POTENTIAL EXPOSURE PROTOCOL

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

In the event of a personnel exposure to a hazardous substance or agent:

- Rescue, when necessary, employing proper equipment and methods.
- Give attention to emergency health problems -- breathing, cardiac function, bleeding, 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 exposed 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. The care of the victim will be monitored by WorkCare physicians. Site officers and personnel should not attempt to get this information, as this activity leads to confusion and misunderstanding.
- Call WorkCare at 1-800-455-6155 (enter Ext. 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 exposure.
 - 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 exposed 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 (e.g., MSDS) to WorkCare at (714) 456-2154.
- Contact Corporate Health and Safety (Matt Soltis) and Human Resources (Marilyn Duffy) Departments at 1-800-245-2730.

As environmental data is gathered and the exposure 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. This generalized summary will be accompanied by a personalized letter describing the individual's findings/results. A copy of the personal letter will be filed in the continuing medical file maintained by WorkCare.

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

Name: _____ Date of Exposure: _____

Social Security No.: _____ Age: _____ Sex: _____

Client Contact: _____ Phone No.: _____

Company Name: _____

I. Exposing Agent

Name of Product or Chemicals (if known): _____

Characteristics (if the name is not known)

Solid Liquid Gas Fume Mist Vapor

II. Dose Determinants

What was individual doing? _____

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

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

Was there skin contact? _____

Was the exposing agent inhaled? _____

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

III. Signs and Symptoms (check off appropriate symptoms)

Immediately With Exposure:

Burning of eyes, nose, or throat
Tearing
Headache
Cough
Shortness of Breath

Chest Tightness / Pressure
Nausea / Vomiting
Dizziness
Weakness

Delayed Symptoms:

Weakness
Nausea / Vomiting
Shortness of Breath
Cough

Loss of Appetite
Abdominal Pain
Headache
Numbness / Tingling

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

Burning of eyes, nose, or throat
Tearing
Headache
Cough
Shortness of Breath
Chest Tightness / Pressure
Cyanosis

Nausea / Vomiting
Dizziness
Weakness
Loss of Appetite
Abdominal Pain
Numbness / Tingling

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

Improved: _____ Worsened: _____ Remained Unchanged: _____

V. Treatment of Symptoms (check off appropriate response)

None: _____ Self-Medicated: _____ Physician Treated: _____

3.0 SITE BACKGROUND

3.1 SITE HISTORY

NAVSTA Mayport is in Duval County, Florida, and approximately 16 miles northeast of Jacksonville at the mouth of the St. Johns River. The base was established in 1942 and is primarily involved in the intermediate-level maintenance of equipment, ships, aircraft, and other support units stationed at the facility.

3.2 PROJECT SITES DESCRIPTION

The FISC fuel farm is located within the northern part of NAVSTA Mayport near the southern shore of the St. Johns River. The site was identified when soil samples collected from soil borings made for a construction project were found to have a fuel odor. The source of the fuel is unknown but is likely to have originated from either the fuel farm area or a former waste oil pit. The waste oil pit was located to the southeast of Tank 201 and may have overflowed at some time into the St. Johns River.

Facility 201 was a 13,500 barrel, cut and cover JP-5 storage tank. The tank was demolished and replaced with a new above ground storage tank in a concrete secondary containment in the location of former Tank 203 between 1999 and 2002.

Facility 202 was a 13,500 barrel, cut and cover JP-5 storage tank. The tank was demolished and replaced with a new above ground storage tank in concrete secondary containment in the location of former Tank 204 between 1999 and 2002.

Facility 203 was a 27,000 barrel, cut and cover diesel fuel-marine storage tank. The tank was demolished and replaced with a new above ground storage tank in concrete secondary containment in the location of former Tank 201 from 1999 to 2002.

Facility 204 was a 27,000 BBL, cut and cover DFM storage tank. The tank was demolished from 1999 to 2002 and replaced with a new AST in concrete secondary containment in the location of the former Tank 202.

Facility 99 was a 5,000 BBL, cut and cover waste oil storage tank. The tank was demolished from 1999 to 2002.

Facility 100 was a 5,000 BBL, cut and cover waste oil storage tank. The tank was demolished from 1999 to 2002.

Facility 101 was a 5,000 BBL, cut and cover waste oil storage tank. The tank was demolished from 1999 to 2002.

4.0 SCOPE OF WORK

This section describes the project tasks that will be performed at NAVSTA Mayport. Additionally, each task has been evaluated and the associated hazards and recommended control measures are listed in Table 5-1 of this HASP. If new tasks are to be performed at the site, Table 5-1 and this section will be modified accordingly. General tasks to be conducted at each of the sites include:

- Mobilization and demobilization
- Soil boring utilizing Direct Push Technology (DPT)
- Multimedia sampling
 - Sub surface soil
 - Surface soil
 - Groundwater
- Decontamination of sampling and heavy equipment
- Investigative-Derived Waste (IDW) management
- Geographic surveying

The above listing represents a summarization of the tasks as they apply to the scope and application of this HASP. For more detailed description of the associated tasks refer to the Work Plan (WP). If additional tasks are determined to be necessary, this HASP will be amended and a hazard evaluation of the additional tasks performed.

5.0 TASKS/HAZARDS/ASSOCIATED CONTROL MEASURES

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

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

As discussed earlier, a Health and Safety Guidance Manual accompanies this table and HASP. The manual is designed to further explain supporting programs and elements for other site -specific aspects as required by 29 CFR 1910.120. The Guidance Manual should be referenced for additional information regarding 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 Tetra Tech NUS SOPs are also provided in this Guidance Manual.

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

5.1 SITE SPECIFIC SAFE WORK PRACTICES

Work conducted in the FISC Fuel Farm requires special safety works practices. Cutting a core hole in asphalt or concrete requires that a hot work permit be issued. Hot works permits must be obtained from the Fire Department. Contact Fire Inspector Cindy Dean at (904) 270-7440. The following must be observed.

- Call the Fire one day in advance to schedule, if possible.
- The assembly point is at the road out side of entrance to FISC.
- All personnel are required to sign in when entering and leaving FISC.
- Directions will be provided at the sign-in point if persons need to retreat further from the FISC grounds.
- Two 10 lb – multi purpose A,B,C type fire extinguishers are required on site for any hot work and associated permits.
- Welding is prohibited in the FISC area.
- Smoking is prohibited in the FISC area.
- Matches, lighters or any other open flame is prohibited in the FISC area
- Smoking is only allowed outside of the fenced in area.
- Cell phones are prohibited in the FISC area.
- Cell phones only allowed outside of fenced area.
- In case of emergency a solid buzz of a horn will sound.
- If the emergency buzzer sounds, equipment must be turned off and personnel leave FISC grounds immediately.

5.2 GENERAL SAFE WORK PRACTICES

In addition to the task-specific work practices identified on Table 5-1, the following 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 is a partial list and may be amended as necessary.

- NO eating, drinking, chewing gum or tobacco, taking medication, or smoking in contaminated or potentially contaminated areas or where the possibility for the transfer of contamination exists.
- A thorough shower and washing must be conducted as soon as possible if excessive skin contamination occurs.
- Avoid contact with potentially contaminated substances. Avoid puddles, pools, mud, or other such areas. Avoid, whenever possible, kneeling on the ground or leaning or sitting on equipment. Keep monitoring equipment away from potentially contaminated surfaces.
- 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 or communicative 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 including Support, Contamination Reduction, and Exclusion Zones.
- Establish appropriate decontamination procedures for leaving the site.
- Immediately report injuries, illnesses, unsafe conditions, unsafe practices, defective equipment, and potential exposure incidents to the SSO.
- Observe coworkers for signs of exposure and heat or cold stress.
- Inform co-workers of potential symptoms of illness, such as headaches, dizziness, nausea, or blurred vision.

5.3 DPT SAFE WORK PRACTICES

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

- Identify underground utilities and buried structures before soil boring.
 - This service is provided by Sunshine State One-Call of Florida, Inc. 1(800) 432-4770.
 - Tetra Tech NUS personnel will use the Utility Locating and Excavation Clearance Standard Operating Procedure provided in Attachment II.
- DPT rigs will be inspected by 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.
 - Use the Equipment Inspection Checklist provided in Attachment III.
 - Inspection frequencies will be once every 10-day shift or following repairs.
- Check operation of the Emergency Stop Switch (initially, then periodically thereafter). See Section 5.2 concerning these testing of the emergency stop devices and the other required precautions.
- Ensure that machine guarding is in place and properly adjusted.
- The work area around the point of operation will be graded to the extent possible to remove any trip hazards near or surrounding operating equipment.
- The DPT operator will establish an equipment staging and lay down plan.
- Keep the work area clear of clutter and slips, trips, and fall hazards.
- Minimize contact with contaminated tools and environmental media.
- Potentially contaminated tools will be placed on polyethylene sheeting for storage and wrapped for transport to the centrally located equipment decontamination area
- An individual must be designated with the primary responsibility of operating the kill switch mechanism. Also, the DPT operator must verbally announce each time the soil boring mechanism is activated. See Section 5.2.
- Support functions (sampling and screening stations) will be maintained a minimum distance from the DPT rig of the height of the mast plus five feet or 25-feet what ever is greater.
- Only qualified operators and knowledgeable ground crew personnel will participate in the operation of the DPT rig.

- Only use manufacturer provided/approved equipment in conjunction with the DPT operation.
- Only personnel essential to the work activity will be in the exclusion zone.
- Equipment used within the exclusion zone will undergo a complete decontamination and evaluation by the FOL and/or the SSO to determine 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.
- When not in use DPT rigs will be shutdown, and emergency brakes set and wheels will be chocked to prevent movement.

Work areas will be restored to equal or better condition than original found in order to remove any contamination brought to the surface and to remove any physical hazards. In situations where these hazards cannot be immediately removed, the area will be barricaded to limit access.

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**TABLE 5-1
TASKS/HAZARDS/CONTROL MEASURES
NS MAYPORT, MAYPORT, FLORIDA**

Task/Operation/ Location	Anticipated Hazards	Recommended Control Measures	Hazard Monitoring	Personal Protective Equipment (Items in italics are optional as conditions or the FOL or SSO require.)	Decontamination Procedures
Mobilization/ Demobilization	<p>Chemical hazards:</p> <p>1) Exposure to identified site contaminants are not anticipated during this activity. However, potential exposure to chemicals brought on-site should be considered.</p> <p>Physical hazards:</p> <p>2) Lifting (strain/muscle pulls)</p> <p>3) Cuts and lacerations</p> <p>4) Pinches and compressions/Struck by</p> <p>5) Slips, trips, and falls</p> <p>Natural hazards:</p> <p>6) Ambient temperature extremes (heat/cold stress)</p> <p>7) Insect and animal bites</p> <p>8) Inclement weather</p>	<p>1) The on-site Hazard Communication Program (Section 5.0 TtNUS Health and Safety Guidance Manual) will be completed by the FOL and/or the SSO. Chemicals brought onto the site by Tetra Tech NUS and subcontractor personnel will be inventoried with each applicable chemical having an MSDS on site, on file. This includes:</p> <ul style="list-style-type: none"> - Accurate Chemical Inventory List (Entries will match chemicals brought on-site, as the names appear on the MSDS and the label) This list, which also includes quantities and storage locations will be maintained in a centralized location and made available upon request. - MSDS's will be maintained in a central location, accessible to site personnel. - Containers will have labels specifying the following information: <ul style="list-style-type: none"> --Chemical Identity (As it appears on the label, MSDS, and Chemical Inventory List) --Appropriate Warning (i.e., eye and skin irritation, flammable, etc.) --Manufacturer's Name Address and Phone Number <p>Personnel will be required to review the appropriate MSDS's prior to use.</p> <p>2) Use machinery or multiple personnel for heavy lifts, where possible.</p> <ul style="list-style-type: none"> - Lift with your legs, not your back, bend your knees move as close to the load as possible, and ensure good hand holds are obtainable. - Minimize the horizontal distance to the center of the lift to your center of gravity. - Minimize turning and twisting when lifting as the lower back is especially vulnerable at this time. - Break lifts into steps if the vertical distance (from the start point to the placement of the lift) is excessive. - Plan each lift. (Perform a "test lift" and inspect your intended path of travel) - Place heavy items on shelves between the waist and chest; lighter items on higher shelves. - Periods of high frequency lifts or extended duration lifts should provide sufficient breaks to guard against fatigue and injury. <p>3) To prevent cuts and lacerations associated with unpacking or packing equipment and supplies, during site preparation (clearing access routes), the following provisions are required:</p> <ul style="list-style-type: none"> - Always cut away from yourself and others, then, if a knife slips, you will not impale yourself or others. - Do not place items to be cut in your hand or on your knee. - Change out blades as necessary to maintain a sharp cutting edge. Many accidents result from struggling with dull cutting instruments. - A protective glove and as necessary an arm guard should be worn on the non-knife hand if there is a chance of slipping. <p>See Section 4.13 of the HSGM for additional safe work practices as it may pertain to cuts/lacerations.</p> <p>4) Only modify tools to manufacturer's recommendation</p> <ul style="list-style-type: none"> - Keep any machine guarding in place, avoid moving parts. - Use tools or equipment where necessary to avoid placing hands in areas vulnerable to pinch points. - Adjust machine guarding as necessary to minimize distance between guards and point of operation. - When staging equipment, insure stacked loads, shelving, are adequately secure to avoid creating a hazard from falling objects. <p>5) Ruts, roots, tools, and other tripping hazards should be eliminated to minimize trips and falls.</p> <ul style="list-style-type: none"> - Mark the area with signs and postings or construct fences to control and isolate traffic in the work area. <p>7) Ambient Temperature Extremes - Wear appropriate clothing for weather conditions. Provide acceptable shelter and liquids for field crews. Additional information regarding heat and cold stress is provided in Section 4.0 of the TtNUS Health and Safety Guidance Manual.</p> <p>8) Insect/Animal Bites and Stings - This is not considered a predominant hazard as these activities are to be conducted in a well maintained area. To combat the potential impact of natural hazards, the following actions are recommended</p> <p>Insects and spiders</p> <ul style="list-style-type: none"> - Wear light color clothes. This will allow easier detection of ticks and insects crawling on your body. It will also assist in heat stress control. - Tape pant legs to work boots to block direct access. This is especially critical when clearing or entering heavy brush and wooded areas. It should be noted that in extreme heat this action may compound the potential for heat stress. - When opening existing well heads be cautious of bees and spiders as these are preferred nesting locations. Fire ants nest are found in these various areas often near well heads and pads. - Use repellents – Follow manufacturer's recommendations for application and re-application. Permanone should be applied liberally to the clothing, but not the skin as it may cause irritation. Concentrate on areas where ticks and other insects may access your body such as pant cuffs, shirt to pants, and collars. Repellants containing DEET can/should be applied directly to the skin. <p>9) Inclement Weather - Suspend or terminate operations until directed otherwise by SSO.</p> <p>See Section 4.0 of the TtNUS Health and Safety Guidance Manual for additional information concerning natural hazards.</p>	<p>Site surveys of the work area shall be performed prior to committing personnel and/or equipment. The purpose will be to identify physical hazards or conditions they may expose personnel and/or equipment to hazards.</p> <p>Visual observation of work practices by the FOL and/or the SSO to minimize potential physical hazards (i.e., improper lifting, unsecured loads, cutting practices, etc.). The FOL and/or the SSO will correct any deficiencies they identify and will discuss their findings as part of the daily tool box meeting.</p> <p>Monitoring for chemical hazards is not required during this activity.</p>	<p>Level D - (Minimum Requirements)</p> <ul style="list-style-type: none"> • Standard field attire (Sleeved shirt; long pants) • Steel toe safety shoes • <i>Snake chaps in remote and unmaintained areas.</i> • <i>Safety glasses</i> • <i>Hardhat (when overhead hazards exists, or identified as a operation requirement)</i> • <i>Reflective vest for high traffic areas</i> • <i>Hearing protection for high noise areas/general rule of thumb/At the direction of the FOL and/or the SSO.</i> <p>As site conditions may change, the following equipment will be maintained during on-site activities as prescribed in Section 2.0 of this HASP</p> <ul style="list-style-type: none"> - Fire Extinguishers - First-aid kit <p>Note: <i>The FOL and/or the SSO will determine the number of fire extinguishers and first-aid kits to be made available based on the number of operations to be conducted at any given time.</i></p>	<p>Good personal hygiene practices should be employed prior to breaks lunch or other period when hand to mouth contact occurs. This will minimize potential ingestion exposures.</p>

**TABLE 5-1
TASKS/HAZARDS/CONTROL MEASURES
NS MAYPORT, MAYPORT, FLORIDA**

Task/Operation/ Location	Anticipated Hazards	Recommended Control Measures	Hazard Monitoring - Types 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 Boring and sampling using Direct Push Technology (DPT).</p> <p>The soil boring/sampling will be accomplished using MacroCore samplers.</p>	<p>Chemical hazards:</p> <p>1) It is not anticipated that previously identified contaminants of concern will be encountered in sufficient concentrations that would represent an inhalation hazard concern.</p> <p>Prior sampling data and/or site history have indicated the following as the primary contaminants: petroleum related compounds including waste oils and general Polynuclear Aromatic Hydrocarbons (PAH's).</p> <p>Further information on these contaminants is provided in Section 6.1.</p> <p>2) Transfer of contamination into clean areas.</p> <p>Physical hazards:</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) Cuts and lacerations</p> <p>9) Vehicular and foot traffic</p> <p>10) Water hazards</p> <p>Natural hazards:</p> <p>11) Inclement weather</p>	<p>1) Safe work practices and monitoring instruments will be used. Avoid contact with contaminated media (water, soils, etc.). Use good work hygiene practices including avoiding hand-to-mouth contact, washing hands and face prior to breaks/lunch or other hand to mouth activities.</p> <p>2) Restrict the cross use of equipment and supplies between locations and activities without first going through a suitable decontamination. Establishing a decontamination procedure for the equipment taken between work locations.</p> <p>3) Equipment will be inspected in accordance with Federal safety and transportation guidelines, OSHA (1926.600.601.602), and manufacturer's design, as applicable. Inspections will be documented using the Equipment Inspection Checklist (See Attachment III).</p> <ul style="list-style-type: none"> - Operated and supported by knowledgeable operators and ground crew. - Used within safe work zones, with routes of approach clearly demarcated. Personnel not directly supporting this operation will remain at least 35 feet from the point of operation or the height of the mast plus 5-feet, whichever is greater. See Section 9.1.1 of this HASP. This will be the area identified as the exclusion zone. - Self-propelled equipment with restricted view moving backward shall be equipped with back up alarm warning system. - 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. - Areas will be inspected prior to the movement of the DPT rig and support vehicles to eliminate any physical hazards. This will be the responsibility of the FOL and/or SSO. - Additional safe work procedures for DPT in Section 5.2 of this HASP and Section 4.0 of the HSGM. <p>4) Hearing protection will be used during subsurface activities using the DPT Rig or when noise levels are >85 dBA. (during operation). Boundaries will be established to limit the affect of the noise hazard. The height of the mast + 5 feet or 35 feet whichever is greater will remove personnel far enough from the noise source as not to present a noise exposure concern. Hearing protection rule of thumb:</p> <ul style="list-style-type: none"> - Excessive noise (>85dBA) are being approach when you have to raise your voice to talk to someone within 2 feet of your location. <p>5) Soil 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. Utility clearance is being provided by Sunshine State One-Call of Florida, Inc. coordinated through City of Jacksonville and Jacksonville Airport Authority contacts.</p> <p>6) Use machinery or multiple personnel for heavy lifts. Use proper lifting techniques as described in Table 5-1 for mobilization/demobilization. DPT stems, auger flights, and well construction supplies are some of the common material that are handled and because of their weight will present a lifting strain hazard associated with this activity.</p> <p>7) Preview work locations for unstable/uneven terrain:</p> <ul style="list-style-type: none"> - Cover, guard and barricade open pits, ditches, and embankments near work areas, as necessary. - Ruts, roots, tools, and other tripping hazards should be eliminated to minimize trips and falls. - Maintain a clutter free work area. - Construct fences or other means of marking (i.e. signs and postings) to control and isolate traffic in the work area and for isolating resource and/or staging areas. <p>8) To prevent cuts and lacerations, the following provisions are required:</p> <ul style="list-style-type: none"> - Always cut away from yourself and others. - Place items to be cut in a secure and stable area. - Change blades often to maintain a sharp cutting edge. - Wear cut-resistant glove(s) made of leather or heavy cotton. <p>9) Use traffic-warning signs, flag persons, and high visibility vests as determined by the SSO when working along traffic thoroughfares.</p> <ul style="list-style-type: none"> - Establish safe zones of approach (i.e. Boom or mast + 5 feet). - The FOL and/or the SSO shall preview traffic routes (foot and vehicular) before the committing personnel and resources. <p>10) When working near bodies of water were potential drowning hazards exits, use a life line or USCG-approved personal floatation device.</p> <p>11) To minimize hazards of this nature, the following provisions shall be employed:</p> <ul style="list-style-type: none"> - Wear appropriate clothing for weather conditions. - Provide acceptable shelter and replacement liquids for field crews as relief from excessive ambient temperatures. - Under conditions of elevated levels of PPE, periods of acclimatization, excessive ambient temperature extremes, or if you believe someone is suffering from a heat/cold related disorder, it may be necessary to conduct heat/cold stress monitoring. - Electrical storms/high winds - Suspend or terminate operations until directed otherwise by SSO. <p>Follow the provisions as specified in Section 4.0 of the Tetra Tech NUS, Inc. Health and Safety Guidance Manual regarding the identification and evaluation of heat/cold stress related conditions.</p>	<p>1) Monitoring shall be conducted to evaluate source concentrations of on-site contaminants in support of the prescribed worker protection levels. Monitoring shall be conducted using</p> <p>Photoionization Detector (PID) with 10.6eV lamp strength.</p> <p>VOCs Monitoring/Action Level</p> <p><10 ppm sustained in the workers breathing zone - continue to work; continue to monitor</p> <p>>10 ppm sustained in the workers breathing zone – Temporarily suspend site activities, Contact PHSO</p> <p>Sustained airborne concentrations above the identified action levels will result in ceasing the operation until airborne concentrations recede below acceptable (background) levels.</p> <p>Failure of these concentrations to diminish will require an upgrade in the level of protection or a change in the air monitoring scheme and therefore a modification of this HASP.</p> <p>Monitoring shall be conducted at the prescribed depths as indicated on the boring logs at the source (borehole) and the breathing zone. Monitoring shall also be conducted at the sampler's location to in the same prescribed frequency when handling samples.</p> <p>Noise monitoring may be conducted at the discretion of the SSO.</p> <p>Action Level - >85 dBA Requires participation in the Project Hearing Conservation Program. As a general rule of thumb, if you have to raise your voice to communicate with someone who is within arm's length of you, then noise levels are probably over 85 dBA and hearing protection should be used.</p>	<p>Soil boring operations and monitoring well installation will be initiated in Level D protection:</p> <p>Sampler/Oversight Personnel:</p> <ul style="list-style-type: none"> - Standard field dress (long pants, Sleeved shirts) - Steel toe safety shoes or work boots - Hard hat - Safety Glasses - Nitrile surgeon style inner gloves for sampling - Hearing protection - <i>Impermeable boot covers</i> - <i>Reflective vest for traffic areas</i> <p>DPT Operators:</p> <ul style="list-style-type: none"> - Standard field attire including sleeved shirt and long pants - Steel toe safety shoes (Steel toe/shank) - Safety glasses - Nitrile inner and outer gloves or supported neoprene - <i>Leather gloves or other cut resistant glove when hand-cutting</i> - Hearing protection - Hard hat - <i>Impermeable boot covers</i> <p>Note: Any use of respiratory protection will require the implementation of the Tetra Tech NUS, Inc. Respiratory Protection Program provided in the Health and Safety Guidance Manual. The implementation of this program will require the modification of this HASP.</p> <p>As site conditions may change, the following equipment will be maintained during on-site activities:</p> <ul style="list-style-type: none"> - Fire Extinguishers - First-aid Kit - Eyewash unit (during well installation) <p>Note: The Safe Work Permit(s) for this task (See Attachment IV 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.</p>	<p>Personnel Decontamination will consist of a soap/water wash and rinse for reusable and non-reusable outer protective equipment (boots, gloves, impermeable apron, as applicable)</p> <p>The sequential procedure is as follows:</p> <p>Stage 1: Equipment drop Decontamination personnel will clean hand tools as necessary.</p> <p>Stage 2: Soap/water wash and rinse of outer boots as applicable and gloves</p> <p>Stage 3: Soap/water wash and rinse of the impermeable apron, as applicable.</p> <p>Stage 4: Disposable PPE will be removed and bagged.</p> <p>Stage 5: Wash face and hands</p> <p>Note: For remote locations away from the centralized decontamination unit:</p> <ul style="list-style-type: none"> - Bag and/or wrap disposable and reusable equipment, respectively for transport back to the decontamination unit. - Hygienic wipes may be used for cleaning hands and face <p>Equipment Decontamination - Heavy and sampling equipment decontamination will take place at a centralized decontamination pad utilizing a steam cleaner or pressure washer as prescribed in Table 5-1 for that task. 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. Vehicles will have their wheels/tires cleaned or sprayed off as applicable as not to track mud onto the roadways servicing this installation. Roadways shall be cleared of any debris resulting from the onsite activity. This is especially critical due to the FOD aspect when working on the airside of the facility</p> <p>The FOL or the SSO will be responsible for evaluating equipment arriving/leaving the site, and between locations.</p>

**TABLE 5-1
TASKS/HAZARDS/CONTROL MEASURES
NS MAYPORT, MAYPORT, FLORIDA**

Task/Operation/Location	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>Multi-media sampling, including groundwater and IDW sampling</p> <p>Monitoring well development and water level measurements also included.</p>	<p>Chemical hazards:</p> <p>1) It is not anticipated that previously identified contaminants of concern will be encountered in sufficient concentrations that would represent an inhalation hazard concern.</p> <p>Prior sampling data and/or site history have indicated the following as the primary contaminants: petroleum related compounds including waste oils and general Polynuclear Aromatic Hydrocarbons (PAH's).</p> <p>Further information on these contaminants is provided in Section 6.1.</p> <p>2) Transfer of contamination into clean areas.</p> <p>Physical hazards:</p> <p>3) Cuts and Lacerations</p> <p>4) Slip, trip, and fall hazards</p> <p>5) Strain/muscle pulls from manual lifting</p> <p>6) Ambient temperature extremes (heat/cold stress)</p> <p>7) Work areas</p> <p>Natural hazards:</p> <p>8) Animal and insect bites and encounters</p> <p>9) Inclement weather</p>	<p>1) Avoid contact with contaminated media (water, soils, etc.) as a universal control measure.</p> <ul style="list-style-type: none"> - Good work hygiene practices include avoiding hand-to-mouth contact to the extent possible, washing hands and face or using hygienic wipes to remove potential contaminants - Contamination levels indicate that concentrations pose a slight inhalation threat. However, as part of the evaluation method samples will be scanned with a PID to determined potential source concentration. <p>When sampling groundwater wells exposure potential is the greatest when initially opening a well and allowing gases to vent into the atmosphere. As a precaution, approach and sample as follows:</p> <ul style="list-style-type: none"> - At arms length, open the well and step away (upwind). - Let the well off gas for a few minutes. <p>When handling sample preservatives collect, review and maintain MSDSs.</p> <p>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. In addition, the bulk of sampling equipment (i.e., tubing, trowels are disposable therefore dedicated. Rinse or remove visible debris and dispose of as standard refuse.).</p> <p>3) Ensure that a Geoprobe® sampling kit is available and used to collect samples during any DPT activities.</p> <ul style="list-style-type: none"> - Acetate sleeve holding trough properly secured and the double-bladed, recessed hand knife is available and used. <p>4) These hazards shall be minimized by adherence to the practices listed below. This includes:</p> <ul style="list-style-type: none"> - Maintain proper housekeeping in work areas. - Preview and inspect work areas to identify and eliminate slip, trip, or fall hazards. - Cover, guard, barricade, and or place warning postings over/at holes or openings that personnel may fall or step into. <p>5) Use machinery or multiple personnel for heavy lifts. Use proper lifting techniques (See Lifting Mobilization/Demobilization, Table 5-1). Use multiple persons and pack small loads to remote locations.</p> <p>6) 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. Take care when working outdoors due to harmful effects of the sun. To reduce the potential for harm follow these measures:</p> <ul style="list-style-type: none"> - Wear a hat that shades the face, neck, and ears. - Apply sunscreen with a SPF of 15 or higher liberally on any exposed skin at least 15 minutes before going outside, then at least every two hours, more if you are sweating a lot. - Plan/provide suitable equipment to offer shade to avoid the midday sun. - The sun's ultraviolet rays are most intense between 10 A.M. and 4 P.M. and can damage skin on hazy days. - Wear wrap-around safety sunglasses. <p>7) Work areas will be surveyed by the FOL and/or the SSO prior to committing personnel or resources.</p> <ul style="list-style-type: none"> - Identify physical and natural hazards. - Barricaded, or eliminated hazards. <p>8) Wear light color clothes to allow easier detection of ticks and insects.</p> <ul style="list-style-type: none"> - Tape pants leg to work boots to block direct access as necessary. - Avoid placing hands or feet in poor visibility areas. - When opening well heads look for bees and spiders nests. - Fire ants mounds are often found in area where the soil the well pad meets. - Use commercially available insect repellents - Follow manufacturer's recommendations. - Permethrin should be applied liberally to the clothing, but not the skin as it may cause irritation. - Apply insect repellants containing DEET directly to skin. - Concentrate on areas where ticks and other insects may access your body such as pant cuffs, shirt to pants, and collars. <p>9) Suspend or terminate operations during electrical storms. Return to work when directed by the FOL and/or the SSO.</p>	<p>1) Monitoring shall be conducted to evaluate source concentrations of potential on-site contaminants in support of the prescribed worker protection levels. Monitoring shall be conducted using</p> <p style="padding-left: 40px;">Photoionization Detector (PID) with 10.6eV lamp strength.</p> <p>VOC Screening Action Level –</p> <p><10 ppm sustained in the workers breathing zone - continue to work; continue to monitor</p> <p>>10 ppm sustained in the workers breathing zone – Temporarily suspend site activities, Contact PHSO.</p> <p>Sustained airborne concentrations above the identified action levels will result in ceasing the operation until airborne concentrations reach (background) levels.</p> <p>Monitoring shall be conducted at the prescribed depths as indicated on the boring logs at the source (borehole) and the breathing zone. Monitoring shall also be conducted at the sampler's location to in the same prescribed frequency when handling samples.</p> <p>Noise monitoring may be conducted at the discretion of the SSO.</p> <p>Action Level - if you have to raise your voice to communicate with someone who is within arm's length of you, hearing protection should be used.</p>	<p>Level D protection will be utilized for the following sampling activities:</p> <ul style="list-style-type: none"> - Standard field dress (long pants, Sleeved shirts) - Hardhat - Steel toe safety shoes or work boots - Safety Glasses - Nitrile surgeon style inner gloves for sampling - <i>Leather gloves or other cut resistant glove when hand-cutting.</i> - Hearing protection - <i>Impermeable boot covers</i> - Reflective vest for traffic areas <p>As site conditions may change, the following equipment will be maintained during on-site activities:</p> <ul style="list-style-type: none"> - First-aid Kit - Eyewash unit (handling preservatives) <p>Protective Measures as specified for soil boring will be employed for subsurface soil sampling at the DPT rig.</p> <p>Note: The Safe Work Permit(s) for this task (See Attachment IV) will be issued at the beginning of each day to address the tasks planned for that day. As part of this task, additional PPE may be assigned to reflect site-specific conditions or special considerations or conditions associated with any identified task.</p>	<p>Personnel Decontamination</p> <p>Upon completion of the sampling:</p> <ul style="list-style-type: none"> - Dedicated trowels, tubing, PPE will be rinsed and bagged for disposal. - Handi-Wipes or similar product will be used to clean hands, prior to moving to the next location. <p>Equipment Decontamination</p> <p>Decontamination of equipment (sampling and hand tools) will proceed as indicated in Table 5-1 of this HASP and/or the Workplan.</p>

**TABLE 5-1
TASKS/HAZARDS/CONTROL MEASURES
NS MAYPORT, MAYPORT, FLORIDA**

Tasks/Operation/Location	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>Decontamination of Heavy Equipment</p> <p>Decontamination of sampling equipment.</p> <p>It is anticipated that this activity will take place at a temporary centralized location.</p> <p>Gross contamination will be removed to the extent possible at the site.</p> <p>Contaminated tools then will be wrapped in polyethylene sheeting for transport to the centralized location for a full decontamination and evaluation.</p>	<p>Chemical hazards:</p> <p>1) It is not anticipated that previously identified contaminants of concern will be encountered in sufficient concentrations that would represent an inhalation hazard concern.</p> <p>Incidental exposure through hand to mouth contact and ingestion is however possible.</p> <p>Further information on these contaminants are provided in Section 6.1.</p> <p>Transfer of contamination into clean areas or onto persons</p> <p>2) Decontamination fluids - Liquinox (detergent); isopropanol (decontamination solvent)</p> <p>Physical hazards:</p> <p>3) Lifting (strain/muscle pulls)</p> <p>4) Noise in excess of 85 dBA</p> <p>5) Flying projectiles</p> <p>6) Falling/Struck by hazards</p> <p>7) Slips, trips, and falls</p> <p>Natural hazards:</p> <p>8) 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 and familiarize yourself with 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 for decontamination purposes. 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. Restrict nonessential personnel from the area. In addition to minimize hazards associated with this operation (flying projectiles, water lacerations and burns), the following controls will be implemented:</p> <ul style="list-style-type: none"> - 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. - Do not point the wand at persons or place against any part of your body. - Thermostat control will be in place and operational to control the temperature levels of the water where applicable. - Inspect hoses and fittings for structural defects - Construct deflection screens as necessary to control overspray and to guard against dispersion of contaminants. <p>6) Ensure wash and drying racks are of suitable construction to prevent heavier items such as auger flights, drive rods, etc. from falling and striking someone during the decontamination process.</p> <p>7) 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> <ul style="list-style-type: none"> - 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. - Hoses should be gathered when not in use to eliminate potential tripping hazards. <p>8) Suspend or terminate operations until directed otherwise by SSO.</p>	<p>Use visual observation and real-time monitoring instrumentation to ensure equipment has been properly cleaned of contamination and dried.</p> <p>PID will be used to determine if contaminants and isopropanol has been removed through the rinse process.</p> <p>Any positive result greater than background will require that the article be re-cleaned and re-rinsed and scanned again.</p> <p>Repeat the process as many times as necessary.</p>	<p>For Heavy Equipment</p> <p>This applies to pressure washing and/or steam cleaning operations and soap/water wash and rinse procedures.</p> <p>Level D Minimum requirements:</p> <ul style="list-style-type: none"> - Hard hat with splash shield - Standard field attire (Long sleeve shirt; long pants) - Safety shoes (Steel toe/shank) - Chemical resistant boot covers - Nitrile or neoprene outer gloves - Safety glasses underneath a splash shield - Hearing protection (plugs or muffs) - <i>Hooded PVC Rainsuits or PE or PVC coated Tyvek. Impermeable aprons may be used instead of coveralls if they offer adequate protection against overspray and back splash.</i> <p>For sampling equipment (trowels, split spoons, etc.), the following PPE is required</p> <p>Consult MSDS for PPE guidance. Otherwise, observe the following.</p> <p>Level D Minimum requirements:</p> <ul style="list-style-type: none"> - Standard field attire (Long sleeve shirt; long pants) - Safety shoes (Steel toe/shank) - Nitrile outer gloves over nitrile inner gloves - Safety glasses - <i>Impermeable apron</i> <p>The Safe Work Permit(s) for this task (See Attachment IV) will be issued at the beginning of each day to address the tasks planned for that day. As part of this task, additional PPE may be assigned to reflect site-specific conditions or special considerations or conditions associated with any identified task.</p>	<p>Personnel Decontamination will consist of a soap/water wash and rinse for reusable and non-reusable outer protective equipment (boots, gloves, PVC splash suits, as applicable).</p> <p>The sequential procedure is as follows:</p> <p>Stage 1: Equipment drop, remove outer protective wrapping; personnel will wash hand tools and pass hand equipment through as necessary.</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 or apron as applicable</p> <p>Stage 4: Disposable PPE will be removed and bagged.</p> <p>Stage 5: Wash face and hands</p> <p>Equipment Decontamination - 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> <p>Heavy Equipment decontamination -</p> <ol style="list-style-type: none"> 1) Remove gross (visible) materials using scrapers, shovels as necessary (soils, etc.) 2) Use the pressure washer/steam cleaner remove remaining visible debris. 3) As necessary, follow up with scrub brushes with Alconox or Liquinox detergent wash. 4) Potable water rinse using pressure washer/steam cleaner as necessary 5) Air dry 6) Visual examination to insure cleanliness. <p>Sampling Equipment Decontamination -</p> <ol style="list-style-type: none"> 1) Remove heavy materials (soils, etc.) 2) Alconox or Liquinox detergent wash 3) Potable water rinse 4) Solvent rinse (Isopropanol) 5) DI water rinse 6) Air dry 7) Scan/screen articles using the PID to insure the removal of site contaminants as well as decontamination solvents.

**TABLE 5-1
TASKS/HAZARDS/CONTROL MEASURES
NAS CECIL FIELD, JACKSONVILLE, FLORIDA**

Tasks/Operation/Location	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 the SSO require.)</i>	Decontamination Procedures
<p>IDW Management and Handling</p> <p>This activity includes the following tasks:</p> <p>Containerization Labeling Staging Monitoring</p>	<p>Chemical hazards: 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 10.0 of this HASP will be employed.</p> <p>Physical hazards:</p> <p>1) Strains and sprains</p> <p>2) Back injuries</p> <p>3) Compressions</p>	<p>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 10.0 of this HASP).</p> <p>1 & 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"> - Use machinery (preferred method) or multiple personnel for heavy lifts. - Use proper lifting techniques: <ul style="list-style-type: none"> -- Lift with your legs, not your back, bend your knees move as close to the load as possible, and ensure good hand holds are available. -- Minimize the horizontal distance to the center of the lift to your center of gravity. -- Minimize turning and twisting when lifting as the lower back is especially vulnerable at this time. -- Break lifts into steps if the vertical distance (from the start point to the placement of the lift) is excessive. -- Plan your lifts – Place heavy items on shelves between the waist and chest; lighter items on higher shelves. -- Periods of high frequency lifts or extended duration lifts should provide sufficient breaks to guard against fatigue and injury. <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"> - Area available to maneuver the lift. - Area of the lift – Work place clutter, slippery surfaces, rough terrain - Your overall physical condition <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:</p> <ul style="list-style-type: none"> - 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. - The drums you are attempting to move, lift and/or relocate may weigh on the average of: <ul style="list-style-type: none"> -- 55-Gallon container of purge or decontamination waters = 475 lbs. (including the container) -- 55-Gallon container of soils (moist) = 750 lbs. (including the container) <p>Satellite Storage Area –To reduce material handling hazards, support spill containment and control, and sampling when necessary, the IDW storage area should be structured as follows:</p> <ul style="list-style-type: none"> - Maximum 4-drums to a pallet with retaining ring bolt and label on the outside for easy access/reference. - Maintain a minimum of 4-feet between each row of pallets. This is the minimum distance necessary to wheel drums on a drum dolly - If the site is not secured, the satellite storage area shall be fenced and signs placed indicating the following: <ul style="list-style-type: none"> -- Primary Point of Contact (Preferably someone at the Base, and make sure they know they been identified as the Primary Point of Contact). -- Phone Number -- Emergency Contact (If different from the Primary) - Provide a Drum/Container Inventory to the Primary Point of Contact and to Emergency Services, if they deem it necessary. The inventory should contain: <ul style="list-style-type: none"> -- Each drum shall be assigned a unique identification number. -- This number shall be placed on the label and drum shell using a paint marker -- (Note: Do not paint the number on the lid as these have a tendency to get exchanged from time to time.) -- Types of waste materials (Subsurface soils, soil boring cuttings; purge/development waters, etc.) -- Volumes (Full or level associated with the container after completion of the project location) -- Where it was derived from (IDW should be separated by SWMU and media) -- Dates (For filled containers and at the completion of work for that area or SWMU) -- Contact – For more information <p>Note: Drums should be labeled with the same information.</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"> • Standard field attire (Sleeved shirt; long pants) • Safety shoes (Steel toe/shank) • Leather or canvas work gloves • <i>Safety glasses (When utilizing cables or slings to move the containers)</i> • <i>Hardhat (when overhead hazards exists, or identified as a operation requirement)</i> <p>PPE changes may be made with the implementation of the Spill Containment Program. This represents the only anticipated modification to this level of protection.</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 STATION MAYPORT
JACKSONVILLE, FLORIDA**

Tasks/Operation/Location	Anticipated Hazards	Recommended Control Measures	Hazard Monitoring - Type And Action Levels	Personal Protective Equipment	Decontamination Procedures
<p>Surveying – Geographical</p> <p>The locations identified to be surveyed are largely within improved and well maintained areas. Therefore, the necessity to cut clear lines from vertical and horizontal control monuments is not anticipated.</p>	<p>Chemical hazards:</p> <p>Significant exposure to site contaminants is not anticipated during this task.</p> <p>Physical hazards:</p> <p>1) Slips, trips, and falls</p> <p>2) Traffic hazards</p> <p>Natural hazards:</p> <p>3) Inclement weather</p> <p>4) Insect/animal bites or stings, poisonous plants, etc.</p>	<p>Exposure to site contaminants is not anticipated during this activity. However, it will be required to open the monitoring well cap to survey from the top of the casing.</p> <p>-Exposure potential is the greatest when opening a well that has been sealed and may have gases present in the confined headspace.</p> <p>- Approach the well upwind and, at arms length, open the well.</p> <p>- Let the gas dissipate for a few minutes.</p> <p>1) Preview work locations and site lines for uneven and unstable terrain. A review of accident/injury statistics associated with land surveying identifies slips, trips, and falls as the number one injury cause, followed by cuts and lacerations, and animal/insect bites.</p> <p>2) Vehicular traffic hazards:</p> <p>- Wear high visibility vests when working in traffic patterns.</p> <p>- Provide signage in areas where traffic patterns will be altered (Survey crew working; lane restriction, etc.).</p> <p>- See Mobilization/Demobilization, Table 5-1 for information concerning control measures for vehicle and traffic hazards as it pertains to accessing and working on taxiways and runways.</p> <p>4) Electrical storms or high winds - Suspend or terminate operations until directed otherwise by SSO.</p> <p>Harmful effects of the Sun - Care should be exercised when working outdoors due to harmful effects of the sun. To reduce the potential for sunburn and melanoma the following measures should be employed:</p> <p>- Wear a hat that shades the face, neck, and ears.</p> <p>- Apply sunscreen with a SPF of 15 or higher liberally on any exposed skin at least 15 minutes before going outside, then at least every two hours, more if you are sweating a lot.</p> <p>- To the extent possible, plan/provide suitable equipment to offer shade to avoid the midday sun since the sun's ultraviolet rays are most intense between 10 A.M. and 4 P.M. and can damage your skin even on hazy days.</p> <p>- Wear wrap-around sunglasses to protect the eyes and delicate skin around them.</p> <p>5) This is not considered a predominant hazard as these activities are to be conducted in maintained areas. However, to combat the potential impact of natural hazards, the following actions are recommended as necessary:</p> <p>Insects and spiders</p> <p>- Wear light color clothes. This will allow easier detection of ticks and insects crawling on your body. It will also assist in heat stress control.</p> <p>- Tape pant legs to work boots to block direct access. This is especially critical when clearing or entering heavy brush and wooded areas.</p> <p>- Use repellents – Follow manufacturer's recommendations for application and re-application. Permethrin should be applied liberally to the clothing, but not the skin as it may cause irritation. Apply repellents containing DEET directly on skin surfaces. Concentrate on areas where ticks and other insects may access your body such as pant cuffs, shirt to pants, and collars.</p> <p>- Upon exiting the high brush and wooded areas perform a close body inspection to remove any ticks or other insects that have attached to your clothing or skin.</p> <p>- Do not stick your hands or feet anywhere where you can't see.</p> <p>- When opening existing well heads be cautious of bees and spiders as these are preferred nesting locations.</p> <p>See Section 4.0 of the TNUS Health and Safety Guidance Manual for additional information concerning natural hazards.</p>	<p>Air monitoring is not required given the unlikelihood that airborne contaminants will be present. The potential for exposure to site contaminants during this activity is considered minimal.</p>	<p><i>(Items In Italics Are Deemed Optional As Conditions Or The FOL Or the SSO Dictate.)</i></p> <p>Surveying activities shall be performed in Level D protection</p> <p>Level D Protection consists of the following:</p> <ul style="list-style-type: none"> • Standard field dress including sleeved shirt and long pants • Shoes rugged lug sole for traction • Work gloves shall be worn when clearing brush. • <i>Safety glasses, hard hats (if working near machinery, overhead hazards, or clearing brush)</i> • <i>Snake chaps for heavily wooded area where encounters are likely.</i> • <i>Tyvek coveralls may be worn to provide additional protection against poisonous plants and insects, particularly ticks.</i> • <i>Reflective or blaze orange vests should be worn when working along traffic thoroughfares.</i> <p>Note: The Safe Work Permit(s) for this task (See Attachment IV) will be issued at the beginning of each day to address the tasks planned for that day. As part of this task, additional PPE may be assigned to reflect site-specific conditions or special considerations or conditions associated with any identified task.</p>	<p>Personnel Decontamination</p> <p>- 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. In addition, early detection shall provide for early removal.</p>

6.0 HAZARD ASSESSMENT

The following section provides information regarding the chemical, physical, and natural hazards anticipated to be present during the activities to be conducted. Table 6-1 provides information related to chemical constituents that have been identified by analysis or are suspected to be present at the site based on historical data. Specifically, toxicological information, exposure limits, symptoms of exposure, physical properties, and air monitoring and sampling data are discussed in the table.

6.1 CHEMICAL HAZARDS

Potential site contaminants are not anticipated to be encountered at concentrations that are likely to pose an occupational exposure threat to site workers. However, exposure to potentially contaminated soil and groundwater via inhalation, ingestion, and dermal contact will be controlled through the use of safe work practices, decontamination, and good personal hygiene practices. As a precautionary measure, air monitoring using a PID will be performed to evaluate airborne concentrations of detectable contaminants of concern. This data indicates low levels of petroleum related compounds including waste oils and general Polynuclear Aromatic Hydrocarbons (PAH's) as the primary class of contaminants.

Table 6-1 provides information on the substances likely to be present at the site to be investigated. Included is information on the toxicological, chemical, and physical properties of these substances. It is anticipated that the greatest potential for exposure to site contaminants is during intrusive activities (e.g., soil boring and groundwater sampling).

6.2 PHYSICAL HAZARDS

The physical hazards that may be present during the performance of site activities are summarized below:

- Slips, trips, and falls
- Lifting (strain/muscle pulls)
- Ambient temperature extremes (heat stress)
- Pinches and compressions
- Vehicular traffic

TABLE 6-1
CHEMICAL, PHYSICAL AND TOXICOLOGICAL DATA
NAVAL STATION MAYPORT, FLORIDA
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Substance	CAS No.	Air Monitoring	Exposure Limits	Warning Property Rating	Physical Properties	Health Hazard Information
Waste Oils 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 ³ (Oil mists); 10 mg/m ³ STEL OSHA: 5 mg/m ³ (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 ³ . Recommended gloves: Any glove suitable to prevent skin contact (Nitrile has been the one most widely used for the other substances, and will be acceptable).	Boiling Pt: 680°F; 360°C Melting Pt: Not available Solubility: Insoluble Flash Pt: 275-500°F; 135-260°C depends on the distillation fraction LEL/LFL: Not available UEL/UFL: Not available Vapor Density: Not available Vapor Pressure: <0.5 mmHg Specific Gravity: 0.90 Incompatibilities: None reported Appearance and odor: Colorless, oily, with an odor of burned lubricating oil.	Minor irritation to the eyes, skin, and respiratory system.
General PAHs / Coal Tar Pitch Volatiles / Creosote / cresol (Fluoranthene, pyrene, benzo(a) anthracene, benzo(a) pyrene, benzo(f)fluoranthene, benzo(k)fluoranthene, etc.)	(CAS Numbers vary depending on specific compound)	PID: I.P. of 8.97 eV, relative response ratio unknown. FID: Response factor unknown but given the substances flammability, detection by FID can be anticipated.	General PAHs: Most PAHs have no established exposure limits. Other Coal Tar Pitch Volatiles / PAHs such as chrysene and benzo(a)pyrene have an exposure limit of 0.2 mg/m ³ (OSHA and ACGIH). 0.1 mg/m ³ - (NIOSH) Creosote / Cresol: OSHA; ACGIH: 5 ppm NIOSH: 2.3 ppm IDLH: 80 mg/m ³	Adequate - use a full-face air-purifying respirator with organic vapor / dust/mist cartridge up to 250 ppm. Cresol has an Odor Threshold of 0.00005-0.0079 ppm. Recommended gloves: Viton >96.00 hrs; butyl rubber >90.00 hrs; neoprene >4.50 hrs	Properties of various PAHs/Coal Tar Pitch Volatiles vary depending upon the specific compound. <u>For Creosote/Cresol:</u> Boiling Pt: 376-397°F; 191-203°C Melting Pt: 52-96°F; 10.9-35.5°C Solubility: Insoluble Flash Pt: 178°F; 81°C LEL/LFL: Not available UEL/UFL: Not available Vapor Density: 3.72 Vapor Pressure: 1 mmHg @ 100-127°F; 38-53°C Specific Gravity: 1.030-1.038 Incompatibilities: Nitric acid, oleum, chlorosulfonic acid, oxidizers Appearance and Odor: Yellowish or colorless, flammable, oily liquid (often brownish because of impurities or oxidation)	Regulated based on effects on respiratory tract and skin irritation Other effects may include eye irritation and central nervous system, disturbances. Acute exposures may result in difficulty breathing, respiratory failure and skin and eye irritation and burns. Chronic exposure may damage the liver, kidneys, lungs and skin and cause photosensitivity. IARC, NTP, NIOSH, ACGIH, and the EPA list some PAHs such as benzo(a)pyrene as a potential carcinogen (ARC 2A, NTP-2, ACGIH TLV-A2, NIOSH-X, EPA-B2).

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These physical hazards are discussed in Table 5-1 as applicable to each site task. Further, these hazards are discussed in detail in Section 4.0 of the Health and Safety Guidance Manual.

6.3 NATURAL HAZARDS

Insect/animal bites and stings, inclement weather, and other natural hazards must be considered given the location of activities to be conducted. In general, avoidance of areas of known infestation or nesting will be the preferred exposure control. Use of additional PPE with joints (ankles and wrists) taped, such as long pants tucked into boots or coveralls, is also recommended. Specific discussion on principle hazards of concern follows:

6.3.1 Fire Ants

Fire ants present a unique situation when working outdoors in Florida. Their aggressive behavior and their ability to sting repeatedly can pose a unique health threat. The sting injects venom that causes an extreme burning sensation. Pustules form which can become infected if scratched. Allergic reactions of people sensitive to the venom include dizziness, swelling, shock and in extreme cases unconsciousness and death. People exhibiting such symptoms should see a physician.

Fire ants can be identified by their habitat. They build mounds in open sunny areas sometimes supported by a wall or shrub. The mound has no external opening. The size of the mound can range from a few inches across to some which are in excess of two feet or more in height and diameter. When disturbed they defend it by swarming out and over the mound, even running up grass blades and sticks.

6.3.2 Snakes, Insects, and Other Animals

The site is suspected of supporting a large population of eastern diamondback rattlesnakes. Given that areas to be investigated could be prime nesting and/or hiding locations for snakes and insects, precautions will be taken when opening manholes and other access doors. When possible, doors and manhole covers will be opened away from personnel to allow snakes or insects to escape. Personnel should avoid reaching into areas that are not visibly clear of snakes or insects. Snake chaps will be worn in areas of known or anticipated snake infestation. Site personnel who are allergic to stinging insects such as bees, wasps, and hornets must be particularly careful since severe illness and death may result from allergic reactions. As with any medical condition or allergy, information regarding the condition must be listed on the Medical Data Sheet and the FOL and SSO notified.

There are various areas throughout the U.S. where Lyme Disease is endemic. Fortunately, Florida is not one of these areas. Nonetheless, personnel should be aware of the hazards of tick bites and Lyme Disease. The longer a disease carrying tick remains attached to the body, the greater the potential for contracting the disease. Wearing long sleeved shirts and long pants (tucked into boots). As well as performing frequent body checks will prevent long term attachment. Site first aid kits should be equipped with medical forceps and rubbing alcohol to assist in tick removal. For information regarding tick removal procedures, and symptoms of exposure consult Section 4.0 of the Health and Safety Guidance Manual.

An Office of Natural Resources or similar entity on Base should be contacted for further direction on the hazards and precautions of naturally occurring wildlife and insects.

6.3.3 Inclement Weather

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

7.0 AIR MONITORING

Direct reading instruments will be used at the site to detect and evaluate the presence of site contaminants and other potentially hazardous conditions. As a result, specific air monitoring measures and requirements are established in Table 5-1 pertaining to the 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 or Flame Ionization Detector

As a precautionary measure, and to evaluate potential exposures 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 and to screen the breathing zones of employees during site activities. The PID has been selected because it is capable of detecting the organic vapors associated with fuels. A Flame Ionization Detector (FID) may be used as an alternative to the PID.

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 SSO 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 TtNUS Equipment Manager or the rental equipment vendor. 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 (copies of which can be found in the Health & Safety Guidance Manual which will be maintained on site for reference). The calibration efforts must be documented. Figure 7-1 is provided for documenting these calibration efforts. This information may instead be recorded in a field operations logbook, provided that 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 SSO 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 SSO 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 SSO 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 SSO (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. The 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 this 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 and to track site personnel's training status. The SSO shall be responsible for insuring training qualifications through review of training documentation and for monitoring the status of on-site personnel to insure during the course of this project site personnel do not cycle outside of their training compliance status. The documentation supporting training compliance and status shall be maintained at the project site and be made available, upon request.

8.2 SITE-SPECIFIC TRAINING

Tetra Tech NUS SSO 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. This training documentation will be employed to identify personnel who through record review and attendance of the site-specific training are cleared for participation in site activities. This document shall be posted to maintain an active list of cleared site personnel.

TtNUS will conduct a pre-activities training session prior to initiating site work. Additionally, a brief meeting may be held daily to discuss operations planned for that day as well as, a short meeting may be held at the end of the day 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 9.10) and/or documented in the Project Logbook.

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. The physical examinations will be performed to ensure that personnel are medically qualified to perform hazardous waste site work using respiratory protection.

Documentation for medical clearances will be maintained at the job site and made available, as necessary. A letter from an officer of the company or a medical clearance authorized by the physician can be used as documentation. Documentation must indicate that clearance provided are in accordance with medical surveillance as determined by 29 CFR 1910.120 (f).

The SSO shall be responsible for ensuring that personnel participating in this project provide documentation regarding their medical qualifications. Personnel associated with this project will maintain a current status regarding medical surveillance as determined by 29 CFR 1910.120 (f) or the prescribed interval as determined by the Licensed Occupational Health Care Provider. Documentation supporting medical surveillance compliance and status shall be made available, upon request.

8.3.1 Medical Data Sheet

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 (see Attachment IV). This shall be filled out and collected, reviewed and maintained by the SSO. 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 TtNUS Health and Safety Manager.

9.0 SPILL CONTAINMENT PROGRAM

9.1 SCOPE AND APPLICATION

It is anticipated that quantities of bulk potentially hazardous materials (greater than 55-gallons) will not be handled during the site activities. It is possible, however, that as the job progresses disposable PPE and other non-reusable items may be generated. As needed, 55-gallon drums will be used to contain unwanted items generated during sampling activities. The drum(s) will be labeled with the site name and address, the type of contents, and the date the container was filled as well as an identified contact person. As warranted, samples will be collected and analyzed to characterize the material and determine appropriate disposal measures. Once characterized the drum(s) will be removed from the staging area and disposed of in accordance with Federal, State and local regulations. Given the likely solid nature of drum contents, a comprehensive Spill Containment Program is not necessary. The following discussion is provided as contingency information only.

9.2 POTENTIAL SPILL AREAS

Should drums contain liquid wastes, potential spill areas will be monitored in an ongoing attempt to prevent and control further potential contamination of the environment. Areas designated for handling, loading, and unloading of potentially contaminated waters and debris present limited potential for leaks or spills.

9.2.1 Site Drums/Containers

The drums/containers used for containing liquids will be sealed, labeled, and staged within a centralized area awaiting shipment or disposal.

9.3 LEAK AND SPILL DETECTION

To establish an early detection of potential spills or leaks, periodic inspections by the SSO will be conducted during working hours to visually determine that containers are not leaking. If a leak is detected, the first approach will be to transfer the container contents using a hand pump into a new container. Other provisions for the transfer of container contents will be made and appropriate emergency contacts will be notified, if necessary. In most instances, leaks will be collected and contained using absorbents such as Oil-dry, vermiculite, and/or sand, which may be stored at the staging area in a conspicuously marked drum. This material too, will be containerized for disposal pending analyses. The inspections will be documented in the Project Logbook.

9.4 PERSONNEL TRAINING AND SPILL PREVENTION

Personnel will be instructed on the procedures for spill prevention, containment, and collection of hazardous materials in the site-specific training. The FOL and/or the SSO will serve as the Spill Response Coordinator for this operation should the need arise.

9.5 SPILL PREVENTION AND CONTAINMENT EQUIPMENT

The following represents the types of equipment that may be maintained at the staging area for the purpose of supporting this Spill Containment Program (depending on the likelihood that drums and/or liquid wastes are generated).

- Sand, clean fill, vermiculite, or other noncombustible absorbent (oil-dry);
- Drums (55-gallon U.S. DOT 17-E or 17-H)
- Shovels, rakes, and brooms
- Labels

9.6 SPILL CONTROL PLAN

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

- 1) Notify the SSO or FOL immediately.
- 2) Take immediate actions to stop the leak or spill by plugging or patching the drum or raising the leak to the highest point. Avoid contacting drum contents. Spread the absorbent material in the area of the spill covering completely.

It is not anticipated that a spill will occur in which the field crews cannot handle. Should this occur; however, the FOL or SSO will notify appropriate emergency response agencies.

10.0 SITE CONTROL

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

10.1 EXCLUSION ZONE

The Exclusion Zone will be considered those areas of active operations plus an established safety zone depending on the task. The Exclusion Zone boundaries for multimedia sampling will be 10 feet surrounding the point of sampling.

Where appropriate and necessary to direct facility personnel, this area will be delineated using barrier tape, cones and/or drive poles, and postings.

10.2 CONTAMINATION REDUCTION ZONE

The Contamination Reduction Zone (CRZ) will be a buffer area between the Exclusion Zone and any area of the site where contamination is not suspected. The personnel and sampling equipment decontamination will take place in this area. This area will also serve as a focal point in supporting Exclusion Zone activities.

10.3 SUPPORT ZONE

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

10.4 SITE VISITORS

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

- Personnel invited to observe or participate in operations by TtNUS
- Regulatory personnel (EPA, FDEP, OSHA, etc.)
- NAVSTA Mayport personnel
- Other authorized visitors

Personnel working on this project are required to gain initial access to the site by coordinating with the TtNUS FOL or designee and following established site access procedures.

Upon gaining access to the site, visitors wishing to observe operations in progress will be escorted by a TtNUS representative (arranged for by the FOL) and shall be required to meet the minimum requirements discussed 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 individual's name (proper identification required), the entity which they represent, and the purpose of the visit.

Site visitors will be required to produce the necessary information supporting clearance to the site. This shall include information attesting to applicable training (40-hours of HAZWOPER training) and medical surveillance as stipulated in Section 8.0 of this document. In addition, to enter the site operational zones during planned activities, the 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 operational zone. Visitors are required to observe the protective equipment and site restrictions in effect at the site at the time of their visit. Only Visitors meeting the requirements stipulated in this plan will be permitted to enter the site operational zones during planned activities. Any incidence of unauthorized site visitation will cause the termination of onsite activities until the unauthorized visitor is removed from the premises. Removal of unauthorized visitors will be accomplished with support from the FOL, SSO or on-site security personnel.

10.5 SITE SECURITY

Site security will be accomplished using existing base security resources and procedures, supplemented by TtNUS personnel, if necessary. TtNUS will retain control over active operational areas. The first line of security will take place at the base boundaries restricting the general public. The second line of security will take place at the work site referring interested parties to the FOL. The FOL will serve as a

focal point for site personnel, and will serve as the final line of security and the primary enforcement contact.

10.6 SITE MAPS

Once the areas of contamination, access routes, utilities, topography, and dispersion routes are determined, a site map will be generated and adjusted as site conditions change. These maps will show potential points of contact with the public, roadways, and other significant characteristics that may impact site operations and safety. Site maps will be posted to illustrate up-to-date collection of contaminants and adjustment of zones and access points.

10.7 BUDDY SYSTEM

Personnel engaged in onsite activities will practice the "buddy system" to ensure the safety during this operation.

10.8 MATERIAL SAFETY DATA SHEET (MSDS) REQUIREMENTS

TtNUS personnel will provide MSDSs for chemicals brought on site. The contents of these documents will be reviewed by the SSO with the user(s) of the chemical substances prior to any actual use or application of the substances on site. A chemical inventory of the chemicals used on site will be developed using Section 5.0 of the Health and Safety Guidance Manual. The MSDSs will then be maintained in a central location and will be available for anyone to review upon request.

10.9 COMMUNICATION

TtNUS personnel will be working in close proximity to each other at NAVSTA Mayport. As a result and since two way radio communication will not be available, hand signals, voice commands, and line of site will provide sufficient means of communication. When project tasks are performed simultaneously on different sites, vehicle horns will be used to communicate emergency situations per Section 2.8 of this HASP.

External communication will be accomplished by using provided telephones at the site. External communication will primarily be used for the purpose of resource and emergency resource communications.

10.10 SAFE WORK PERMITS

The Exclusion Zone work conducted in support of this project will be performed using Safe Work Permits to guide and direct field crews on a task by task basis. An example of the Safe Work Permit to be used is illustrated in Figure 10-1. Partially completed Permits for Exclusion Zone tasks are included as Attachment III of this HASP. These work permits will be further supported by the daily meetings conducted during their generation. This effort will ensure the site-specific considerations and changing conditions are incorporated into the planning effort.

Use of these permits will provide the communication line for reviewing protective measures and hazards associated with each operation. This HASP will be used as the primary reference for selecting levels of protection and control measures. The work permit will take precedence over the HASP when more conservative measures are required based on specific site conditions.

The FOL and/or the SSO will be responsible for completing the safe work permit and issuing them to the appropriate parties. Site personnel at the end of each days activity will turn in the permit(s) used for that day to the SSO. The permits will be maintained as part of the permanent project files attesting to safety and health measures employed for a given task at a given time and place. Any problems encountered with the protective measures required should be documented on the permit and brought to the attention of the SSO.

**FIGURE 10-1
SAFE WORK PERMIT**

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

SECTION I: General Job Scope

- 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

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

- V. **Protective equipment required** **Respiratory equipment required**
 Level D Level B Yes Specify on the reverse
 Level C Level A No
 Modifications/Exceptions: None anticipated

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

Primary Route 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 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, SSO to complete or contact Health Sciences, Pittsburgh Office (412)921-7090

X. **Special instructions, precautions:** _____

Permit Issued by: _____ Permit Accepted by: _____

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 one or more of the following characteristics:

- Is large enough and so configured that an employee can bodily enter and perform assigned work.
- Has limited or restricted means for entry or exit (for example, tanks, 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.

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 the chemicals brought on site, including decon solutions, fuels, lime, 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 the chemicals brought on-site, including decontamination solutions, sample preservations, fuel, etc.. This list should be posted in a central area.

Material Safety Data Sheets (MSDS) (maintained) - The MSDSs should also be in a central area accessible to the 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. This list identifies the site personnel, dates of training (including site-specific training), and medical surveillance. The list indicates clearance and 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.

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 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
CFR	Code of Federal Regulations
CNS	Central Nervous System
CRZ	Contamination Reduction Zone
DOD	Department of Defense
DOT	Department of Transportation
EPA	Environmental Protection Agency
eV	electron Volts
FID	Flame Ionization Detector
FOL	Field Operations Leader
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
HEPA	High Efficiency Particulate Air
LEL/O ₂	Lower Explosive Limit/Oxygen
N/A	Not Available
NAVSTA	Naval 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
PVC	Poly Vinyl Chloride
SAP	Sampling and Analysis Plan
SCBA	Self Contained Breathing Apparatus
SSO	Site Safety Officer
STEL	Short Term Exposure Limit
TOM	Task Order Manager
TWA	Time Weighted Average
UV	Ultraviolet
WP	Work Plan

ATTACHMENT I

**INJURY/ILLNESS PROCEDURE
AND REPORT FORM**

TETRA TECHNUS, INC.

INJURY/ILLNESS PROCEDURE WORKER'S COMPENSATION PROGRAM

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

- Stop work as needed to ensure no further harm is done.
- 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. Check with your office location or project health and safety plan for specific instructions.
- If incident involves an injury, illness, or 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 Duffy at (412) 921-8475, and the Corporate Health and Safety Manager, Matt Soltis at (412) 921-8912 within 24 hours of the injury. You will be required to complete an [Injury/Illness Report](#). You may also be required to participate in a more detailed investigation with the Health Sciences Department.
- In the event of a serious near-miss incident, a "Serious Near Miss Report" (Form AR-2, available online at <https://go2.tetratech.com> under "Departments", "Health and Safety", "Accident Reporting Procedures", hyperlink for "Serious Near Miss Report") must be completed and faxed to the Corporate Health and Safety Manager within 48 hours.
- If further medical treatment is needed, our insurance carrier, ACE, will provide information on the authorized providers customized to the location of the injured employee. You can find this information by accessing the website of ACE's claims handler, ESIS, at : www.esis.com. These providers are to be used for treatment of Worker's Compensation injuries subject to the laws of the state in which you work.

ADDITIONAL QUESTIONS REGARDING WORKER'S COMPENSATION:

Contact your local Human Resources representative (Marilyn Duffy), Corporate Health and Safety Manager (Matt Soltis), 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 pay premiums on behalf of their employees. This program is based on a no-fault system, and benefits are provided for covered events as an exclusive remedy to the injured employee regardless of fault. The types 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 from the first day of work. All employees must follow the above injury/illness reporting procedures. If you are working out-of-state and away from your home office, you are still eligible for worker's compensation benefits.

Consultants, independent contractors, and employees of subcontractors and employees from temporary employment agencies 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.



TETRA TECH, INC.

ACCIDENT AND ILLNESS INVESTIGATION REPORT

To: _____
Subsidiary Health and Safety Representative

Prepared by: _____

Position: _____

cc: _____
Workers Compensation Administrator

Office: _____

Project name: _____

Telephone number: _____

Project 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: _____

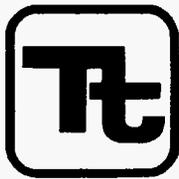
To Be Completed during Report to Workers Compensation Carrier

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.

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>[Signature]</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, TtNUS shall not make any repairs or modifications to existing utility lines without prior permission of the utility owner, property owner, and Corporate HSM. All repairs require that the line be locked-out/tagged-out prior to work.

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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**

Alabama Alabama One-Call 1-800-292-8525	Iowa Iowa One-Call 1-800-292-8989	New Jersey New Jersey One Call 1-800-272-1000
Alaska Locate Call Center of Alaska, Inc. 1-800-478-3121	Kansas Kansas One-Call System, Inc. 1-800-344-7233	New Mexico New Mexico One Call System, Inc. 1-800-321-2537 Las Cruces- Dona Ana Blue Stakes 1-888-526-0400
Arizona Arizona Blue Stake 1-800-782-5348	Kentucky Kentucky Underground Protection Inc. 1-800-752-6007	New York Dig Safely New York 1-800-862-7962 New York City- Long Island One Call Center 1-800-272-4480
Arkansas Arkansas One Call System, Inc. 1-800-482-8998	Louisiana Louisiana One Call System, Inc. 1-800-272-3020	North Carolina The North Carolina One-Call Center, Inc. 1-800-632-4949
California Underground Service Alert North 1-800-227-2600 Underground Service Alert of Southern California 1-800-227-2600	Maine Dig Safe System, Inc. 1-888-344-7233	North Dakota North Dakota One-Call 1-800-795-0555
Colorado Utility Notification Center of Colorado 1-800-922-1987	Maryland Miss Utility 1-800-257-7777 Miss Utility of Delmarva 1-800-282-8555	Ohio Ohio Utilities Protection Service 1-800-362-2764 Oil & Gas Producers Underground Protect'n Svc 1-800-925-0988
Connecticut Call Before You Dig 1-800-922-4455	Massachusetts Dig Safe System, Inc. 1-888-344-7233	Oklahoma Call Okie 1-800-522-6543
Delaware Miss Utility of Delmarva 1-800-282-8555	Michigan Miss Dig System, Inc. 1-800-482-7171	Oregon Oregon Utility Notification Center/One Call Concepts 1-800-332-2344
Florida Sunshine State One-Call of Florida, Inc. 1-800-432-4770	Minnesota Gopher State One Call 1-800-252-1168	Pennsylvania Pennsylvania One Call System, Inc. 1-800-242-1776
Georgia Underground Protection Center, Inc. 1-800-282-7411	Mississippi Mississippi One-Call System, Inc 1-800-227-6477	Rhode Island Dig Safe System, Inc. 1-888-344-7233
Hawaii Underground Service Alert North 1-800-227-2600	Missouri Missouri One-Call System, Inc. 1-800-344-7483	South Carolina Palmetto Utility Protection Service Inc. 1-888-721-7877
Idaho Dig Line Inc. 1-800-342-1585 Kootenai County One-Call 1-800-428-4950 Shoshone - Benewah One-Call 1-800-398-3285	Montana Utilities Underground Protection Center 1-800-424-5555 Montana One Call Center 1-800-551-8344	South Dakota South Dakota One Call 1-800-781-7474
Illinois JULIE, Inc. 1-800-892-0123 Digger (Chicago Utility Alert Network) 312-744-7000	Nebraska Diggers Hotline of Nebraska 1-800-331-5666	Tennessee Tennessee One-Call System, Inc. 1-800-351-1111
Indiana Indiana Underground Plant Protection Service 1-800-382-5544	Nevada Underground Service Alert North 1-800-227-2600	
	New Hampshire Dig Safe System, Inc. 1-888-344-7233	

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ATTACHMENT 1 (Continued)

Texas

Texas One Call System
1-800-245-4545
Texas Excavation Safety System, Inc.
1-800-344-8377
Lone Star Notification Center
1-800-669-8344

Utah

Blue Stakes of Utah
1-800-662-4111

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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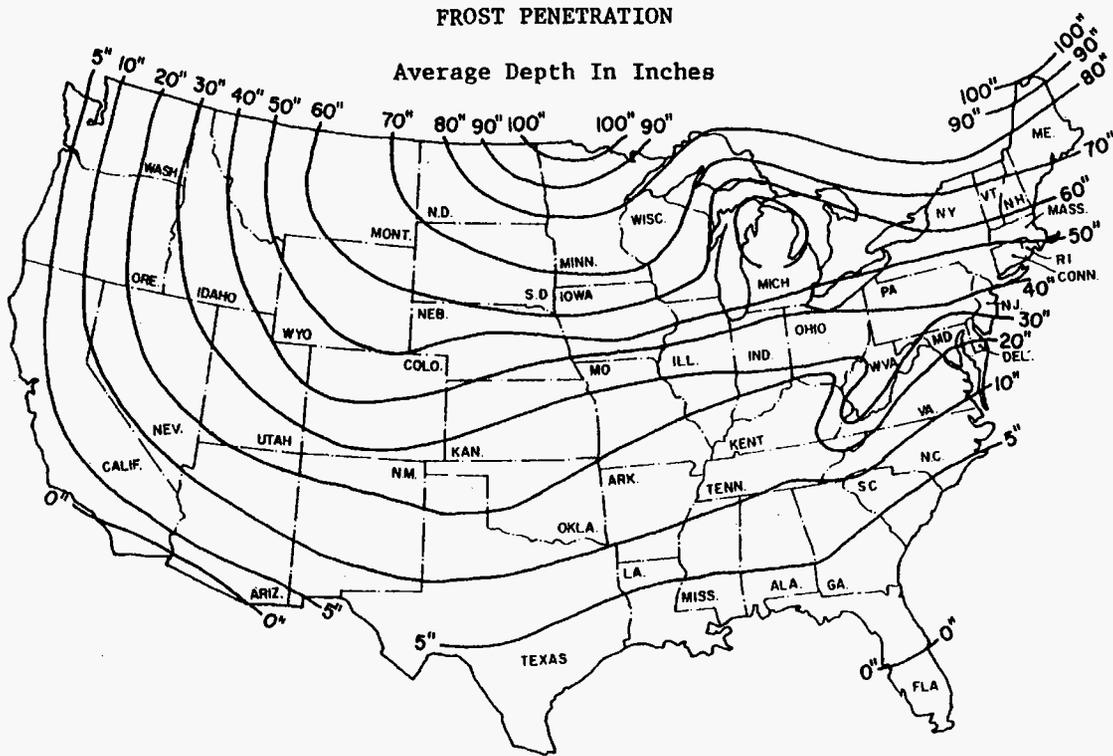
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ATTACHMENT 2

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>.

ATTACHMENT III

EQUIPMENT INSPECTION CHECKLIST

EQUIPMENT INSPECTION CHECKLIST

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"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<p>Emergency Stop Devices</p> <ul style="list-style-type: none"> Emergency Stop Devices (At points of operation) Have all emergency shut offs identified been communicated to the field crew? Has a person been designated as the Emergency Stop Device Operator? 	
<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<p>Highway Use</p> <ul style="list-style-type: none"> Cab, mirrors, safety glass? Turn signals, lights, brake lights, etc. (front/rear) for equipment approved for highway use Seat Belts? Is the equipment equipped with audible back-up alarms and back-up lights? Horn and gauges Brake condition (dynamic, park, etc.) Tires (Tread) or tracks Windshield wipers Exhaust system Steering (standard and emergency) Wheel Chocks? Are tools and material secured to prevent movement during transport? Especially those within the cab? Are there flammables or solvents stored within the cab? 	

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"/> <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"/>	Fluid Levels: <ul style="list-style-type: none"> • Engine oil • Transmission fluid • Brake fluid • Cooling system fluid • Hoses and belts • Hydraulic oil 	
<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"/>	Power cable and/or hoist cable Hooks <ul style="list-style-type: none"> • Are the hooks equipped with Safety Latches? • Is the hook showing signs of wear in excess of 10% original dimension? • Is there a bend or twist exceeding 10% from the plane of an unbent hook? • Increase in throat opening exceeding 15% from new condition • Excessive nicks and/or gouges • Clips • Number of U-Type (Crosby) Clips (5/16 – 5/8 = 3 clips minimum) (3/4 – 1 inch = 4 clips minimum) (1 1/8 – 1 3/8 inch = 5 clips minimum) 	
<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"/>	Wire Rope (Hoist Mechanism) <ul style="list-style-type: none"> • Reduction in Rope diameter (5/16 wire rope > 1/64 reduction nominal size -replace) (3/8 to 1/2 wire rope > 1/32 reduction nominal size-replace) (9/16 to 3/4 wire rope > 3/64 reduction nominal size-replace) • Number of broken wires (6 randomly broken wires in one rope lay) (3 broken wires in one strand) • Number of wire rope wraps left on the Running Drum at nominal use (≥ 3 required) - Lead (primary) sheave is centered on the running drum • Lubrication of wire rope (adequate?) • Kinks, bends – Flattened to > 50% diameter 	
<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	Hemp/Fiber rope (Cathead/Split Spoon Hammer) <ul style="list-style-type: none"> • Minimum 3/4; maximum 1 inch rope diameter (Inspect for physical damage) • Rope to hammer is securely fastened 	
<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"/>	Safety Guards – <ul style="list-style-type: none"> • Around rotating apparatus (belts, pulleys, sprockets, spindles, drums, flywheels, chains) all points of operations protected from accidental contact? • Hot pipes and surfaces exposed to accidental contact? • High pressure lines • Nip/pinch points 	

Yes	No	NA	Requirement	Comments
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Attachments <ul style="list-style-type: none"> Have the attachments designed for use (as per manufacturer's recommendation) with this equipment been inspected and are considered suitable for use? (Auger and drill rod pins and connectors) 	
<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"/>	Operator Qualifications <ul style="list-style-type: none"> Does the operator have proper licensing where applicable, (e.g., CDL)? Does the operator, understand the equipment's operating instructions? Is the operator experienced with this equipment? Is the operator 21 years of age or more? 	
<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"/>	PPE Required for Drill Rig Exclusion Zone <ul style="list-style-type: none"> Hardhat Safety glasses Work gloves Chemical resistant gloves _____ Steel toed Work Boots Chemical resistant Boot Covers Apron Coveralls Tyvek, Saranex, cotton) _____ 	
<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"/>	Other Hazards <ul style="list-style-type: none"> Excessive Noise Levels? _____ dBA Chemical hazards (Drilling supplies - Sand, betonite, grout, fuel, etc.) <ul style="list-style-type: none"> - MSDSs available? Will On-site fueling occur <ul style="list-style-type: none"> - Safety cans available? - Fire extinguisher (Type/Rating - _____) 	

Approved for Use Yes No See Comments

Site Health and Safety Officer

Operator

ATTACHMENT IV

SAFE WORK PERMITS

**SAFE WORK PERMIT
MOBILIZATION AND DEMOBILIZATION
NAVAL STATION MAYPORT
MAYPORT, FLORIDA**

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

- I. **Work limited to the following (description, area, equipment used):** Mob/Demob
- II. **Primary Hazards::** lifting; cuts and lacerations; pinches and compressions; slip, trip and falls; ambient temperature extremes; insect and animal bites; and 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
<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 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 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. Use additional PPE based on the hazards that are associated with each task. Use work gloves when cutting boxes or handling sharp tools/cutting devices. Safety glasses will be required.

Permit Issued by: _____ Permit Accepted by: _____

**SAFE WORK PERMIT
SOIL BORING/SUBSURFACE SOIL SAMPLING
NAVAL STATION MAYPORT
MAYPORT, FLORIDA**

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

I. **Work limited to the following (description, area, equipment used):** Soil Boring using DPT and MacroCore sampling.

II. **Primary Hazards:** Chemical exposure; contamination transfer; heavy equipment hazards; noise; energized systems; lifting; slip, trip and fall; cuts and lacerations; vehicular and foot traffic; insect/animal bites, 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** **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
<u>Waste oils and PAHs</u>	<u>PID w/ 10.6 eV lamp</u>	<u>sustained readings(> 1 minute)</u>	<u>evacuate area until</u>
_____	_____	<u>above 10 ppm</u>	<u>readings return to</u>
_____	_____	_____	<u>background</u>
_____	_____	_____	_____

Primary Route(s) of Exposure/Hazard: inhalation

(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 checked="" 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 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 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 checked="" type="checkbox"/> No	Other..... <input type="checkbox"/> Yes <input type="checkbox"/> No

Modifications/Exceptions: Driller and helper will wear impermeable apron when handling drill augers.

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. 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
NAVAL STATION MAYPORT
MAYPORT, FLORIDA**

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

I. Work limited to the following (description, area, equipment used): Surface soil, groundwater and IDW sampling

II. Primary Hazards: Potential hazards associated with this task: chemicals; transfer of contamination; slips, trips and falls; lifting; strains and muscle pulls from manual lifting; animal and insect bites, and 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

Waste oils and PAHs

Hazard Monitoring

PID w/ 10.6 eV lamp

Action Level(s)

sustained readings(> 1 minute)
 above 10 ppm

Response Measures

Evacuate area until
 readings return to
 background

Primary Route(s) of Exposure/Hazard: absorption

(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 Yes No
 Safety Glasses Yes No
 Chemical/Splash Goggles Yes No
 Splash Shield Yes No
 Splash Suits/Coveralls Yes No
 Impermeable Apron Yes No
 Steel Toe Work Shoes or Boots Yes No
 High Visibility Vest Yes No
 First Aid Kit Yes No
 Safety Shower/Eyewash Yes No

Modifications/Exceptions: _____

Hearing Protection (Plugs/Muffs) Yes No
 Safety Belt/Harness Yes No
 Radio/Cellular Phone Yes No
 Barricades Yes No
 Gloves (Type – Nitrile) Yes No
 Work/rest regimen Yes No
 Chemical Resistant Boot Covers Yes No
 Tape/Insect Repellent Yes No
 Fire Extinguisher Yes No
 Other Yes No

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 all media is contaminated and avoid contact through the use of safe work practices, PPE and decontamination. Use the Geoprobe® sampling kit to protect against cuts when opening the acetate sampling tubes.

Permit Issued by: _____ Permit Accepted by: _____

**SAFE WORK PERMIT
DECONTAMINATION
NAVAL STATION MAYPORT
JACKSONVILLE, FLORIDA**

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:** Chemical exposure including decon fluids; lifting; noise; flying projectiles; vehicle and foot traffic; falling hazards; slip, trip and fall; and 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** **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
<u>Waste oils and PAHs</u>	<u>PID w/ 10.6 eV lamp</u>	<u>sustained readings(> 1 minute)</u>	<u>evacuate area until</u>
_____	_____	<u>above 10 ppm</u>	<u>readings return to</u>
_____	_____	_____	<u>background</u>
_____	_____	_____	_____

Primary Route(s) of Exposure/Hazard: absorption

(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 type="checkbox"/> Yes <input checked="" 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 checked="" 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 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:** 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
GEOGRAPHIC LAND SURVEYING
NAVAL STATION MAYPORT
JACKSONVILLE, FLORIDA**

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

- I. **Work limited to the following (description, area, equipment used):** Geographic Land Survey
- II. **Primary Hazards:** Potential hazards associated with this task: slip, trip and fall; vehicular and foot traffic hazards 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: _____ 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 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 - <u>Work</u>)..... | <input 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 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. Tape up pant legs. Use commercially available insect repellents such as DEET and Permanone. Apply and re-apply according to manufactures instructions.

- 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
NAVAL STATION MAYPORT
JACKSONVILLE, FLORIDA**

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

I. **Work limited to the following (description, area, equipment used):** IDW management, moving and storage

II. **Primary Hazards:** Potential hazards associated with this task: slip, trip and fall; vehicular and foot traffic; insect/ animal bites or stings, poisonous plants; and 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 expected during this task	_____	_____	_____
_____	_____	_____	_____

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 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: _____

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 roll off boxes and drums used to store IDW prior to use. Cover IDW containers and roll off boxes to prevent unauthorized entry and filling with rain water. Do not over load. Disperse IDW evenly. Use proper lifting practices and obtain assistance when handling heavy drums.

Permit Issued by: _____ Permit Accepted by: _____

ATTACHMENT V
MEDICAL DATA SHEET

MEDICAL DATA SHEET

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

Project _____

Name _____ Home Telephone _____

Address _____

Age _____ Height _____ Weight _____

Name of Next Kin _____

Drug or other Allergies _____

Particular Sensitivities _____

Do You Wear Contacts? _____

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

What medications are you presently using? _____

Do you have any medical restrictions? _____

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

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

Signature

Date