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HEALTH AND SAFETY PLAN FOR SITE ASSESSMENT OF BUILDING 351 FLEET TRAINING FACILITY NS MAYPORT FL

4/1/2000

TETRA TECH NUS

Revision 1
04/20/00

HEALTH AND SAFETY PLAN
for
SITE ASSESSMENT
for
BUILDING 351
at
THE FLEET TRAINING FACILITY

NAVAL STATION
MAYPORT, FLORIDA

Southern Division
Naval Facilities Engineering Command
Contract Number N62467-94-D-0888
Contract Task Order 0122

April 2000

Revision 1
04/20/00

HEALTH AND SAFETY PLAN
FOR
SITE ASSESSMENT AT BUILDING 351
AT THE
FLEET TRAINING FACILITY

NAVAL STATION
MAYPORT, FLORIDA

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

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

Submitted by:
Tetra Tech NUS, Inc.
661 Andersen Drive Foster Plaza 7
Pittsburgh, Pennsylvania 15220

CONTRACT NUMBER N62467-94-D-0888
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APRIL 2000

PREPARED UNDER THE SUPERVISION OF:

Mark T. Perry for

RICHARD M. OFSANKO
TASK ORDER MANAGER
TETRA TECH NUS, INC
DEERFIELD BEACH, FLORIDA

APPROVED FOR SUBMITTAL BY:

Matthew M. Soltis

MATTHEW M. SOLTIS, CIH, CSP
CLEAN H&S MANAGER
TETRA TECH NUS, INC.
PITTSBURGH, PENNSYLVANIA

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1.0 INTRODUCTION

This Health and Safety Plan (HASP) provides practices and procedures for Tetra Tech NUS, Inc. (TtNUS) personnel engaged in a site assessment at the Naval Station in Mayport, Florida (NAVSTA Mayport). Project activities will be conducted at Building 351 at the Fleet Training Facility. This work is authorized under the Comprehensive Long - Term Environmental Action Navy (CLEAN) contract, administered through the U.S. Navy Southern Division Naval Facilities Engineering Command, as defined under Contract No. N62467-94-D-0888; Contract Task Order Number 0122. 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 all 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 information used in this HASP is the latest available 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. All 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 all 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 all 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 all aspects of health and safety on site. These duties may include:

  i. Coordinates all 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 all onsite personnel.
  ix. Investigates all 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:** Jan Bouvier **Phone Number:** (904) 270-6730

Scheduled Activities: This activity will be divided into a multi-task operation, including multi media sampling, and monitoring well installation. 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 March 2000 .

Project Team:

TtNUS Management Personnel:	Discipline/Tasks Assigned:
Richard Ofsanko	Task Order Manager (TOM)
Gary Braganza	Field Operations Leader (FOL)
TBD	Site Safety Officer (SSO)
Matthew M. Soltis, CIH, CSP	CLEAN Health and Safety Manager
James K. Laffey	Project Health and Safety Officer (PHSO)

Other Potential TtNUS Project Personnel:

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. All site activities will be coordinated with the client contact, Jan Bouvier. 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 Jan Bouvier will be notified anytime outside response agencies are contacted. This Emergency Action Plan conforms to the requirements of 29 CFR 1910.38(a), as allowed in 29 CFR 1910.120(l)(1)(ii).

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

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

2.2 PRE-EMERGENCY PLANNING

Through the initial hazard/risk assessment effort, 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, pre-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, all site personnel will be responsible for reporting hazardous situations. Where potential hazards exist, TtNUS will initiate control measures to prevent adverse effects to human health and the environment.

The above actions will provide early recognition for potential emergency situations, and allow TtNUS to 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, all personnel will immediately stop activities and report to the designated safe place of refuge unless doing so would pose additional risks. When evacuation to the primary place of refuge is not possible, personnel will proceed to a designated alternate location and remain until further notification from the TtNUS FOL. Safe places of refuge will be identified prior to the commencement of site activities by the 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 all site personnel. Emergency response personnel will be immediately notified of any unaccounted personnel. The SSO will document

the names of all personnel onsite (on a daily basis) in the site Health and Safety Logbook. This information will be utilized to perform the head count in the event of an emergency.

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

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

TABLE 2-1
EMERGENCY REFERENCE
NAVAL STATION
MAYPORT, FLORIDA

AGENCY	TELEPHONE
EMERGENCY	**911**
Fire Department	911 or (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, Mr. Jan Bouvier	(904) 270-6730
Public Works Trouble Desk (for problems with utilities)	(904) 542-2122
Chemtrec National Response Center	(800) 424-9300 (800) 424-8802
Task Order Manager, Rick Ofsanko	(954) 570-5885
Health and Safety Manager, Matthew M. Soltis, CIH, CSP	(412) 921-8912
Project Health and Safety Officer, James K. Laffey	(412) 921-8678

NOTE: 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

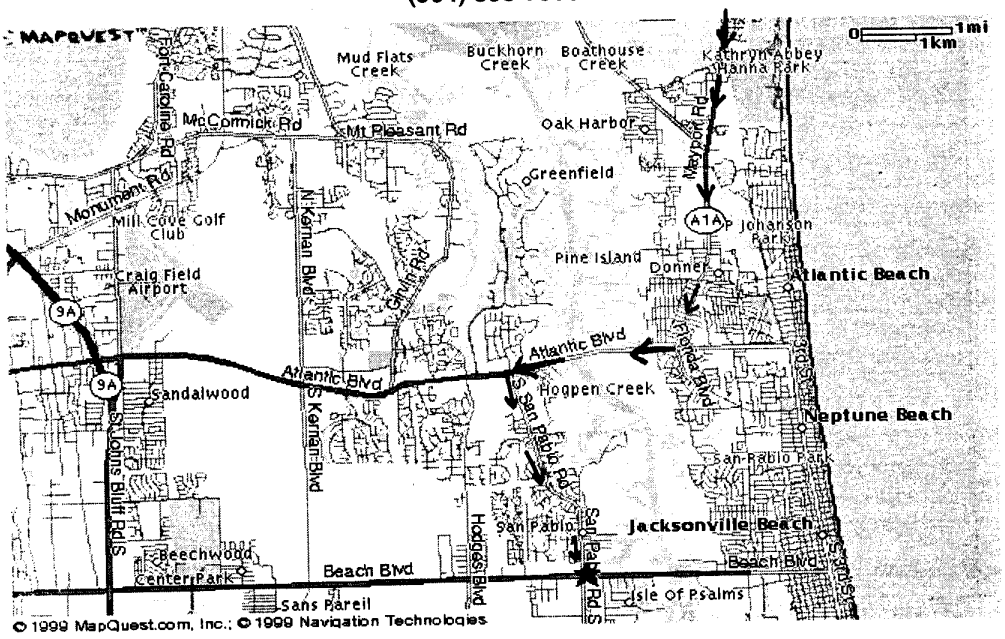
The Base Medical Clinic should be used for life-threatening emergencies only. It is located in Building 1363 on Massey Avenue. Memorial Health Care Center will be used for medical care beyond basic first aid treatment. Directions to the Center are:

Exit base, take Mayport Road (A1A) to Atlantic Blvd. Take a right onto Atlantic Blvd. across the Intercoastal Waterway. At the first intersection, take a left onto San Pablo Blvd. The Medical Center is at the intersection of San Pablo Blvd. and Beach Blvd (14444 Beach Blvd.).

See Figure 2-1 Route to Hospital Map.

Figure 2-1
Route to Hospital

Pam Hudgens MD - Memorial Healthcare-San Pablo
14444 Beach Blvd # 301, Jacksonville, FL 32250
(904) 858-7500



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

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

Dial 911 and call other pertinent emergency contacts listed in Table 2-1 and report the incident. Give the emergency operator the location of the emergency, the type of emergency, the number of injured, and a brief description of the incident. Stay on the phone and follow the instructions given by the operator. The operator will then notify and dispatch the proper emergency response agencies.

2.9 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 Jan Bouvier 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
EMERGENCY RESPONSE 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 Department (Matt Soltis) 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 all data and provide a summary report of the incident. A copy of this report will be placed in each victim's medical file in addition to being distributed to appropriately designated company officials.

Each involved worker will receive a letter describing the incident but deleting any personal or individual comments. 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	Chest Tightness / Pressure
Tearing	Nausea / Vomiting
Headache	Dizziness
Cough	Weakness
Shortness of Breath	

Delayed Symptoms:

Weakness	Loss of Appetite
Nausea / Vomiting	Abdominal Pain
Shortness of Breath	Headache
Cough	Numbness / Tingling

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

Burning of eyes, nose, or throat	Nausea / Vomiting
Tearing	Dizziness
Headache	Weakness
Cough	Loss of Appetite
Shortness of Breath	Abdominal Pain
Chest Tightness / Pressure	Numbness / Tingling
Cyanosis	

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 SITE DESCRIPTION

Building 351 is located within the northeastern section of Mayport Naval Station. Building 351 is one of the main buildings for the Fleet Training Facility. The source area for assessment activities is north of the main entrance to Building 351, and between Building 351 and Building 1388. Petroleum was released into the subsurface due to a leak from a diesel fuel line in the vicinity of the Building 351 entrance area.

3.3 SITE HISTORY

On July 2, 1999 a diesel fuel surface spill was reported at the Fleet Training Facility, Building 351. The cause of the discharge was reported to be a leaking 1.5 inch diameter, plastic underground distribution pipe containing diesel fuel. The total quantity of the diesel fuel release was unknown. The fuel released into the soil impacted an area approximately 14 feet long by 8 feet wide. Hydrocarbon impacted soil was screened using a calibrated Organic Vapor Analyzer with a Photo Ionization Detector (OVA-PID). The horizontal extent of the excavation was limited due to the presence of permanent structures adjacent to the impacted areas. Field screening and laboratory analysis of soil samples indicated that contaminated soils were present in the vicinity of Building 351. In total, approximately 7 tons of diesel contaminated soil was removed from the Building 351 area. Following the soil excavation, a temporary monitoring well was installed in the center of the excavated area to evaluate groundwater quality. An oil-water interface Probe indicated the presence of approximately two feet of liquid phase hydrocarbons in the shallow aquifer beneath the excavation area. A Source Removal Report was prepared by Aerostar Environmental Services, Inc to summarize the data collected during the incident.

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

- Mobilization and demobilization
- Multi media sampling
  - Groundwater
  - Soil (surface and subsurface)
- Monitoring Well Installation
  - Direct-push Technology (DPT)
  - Hollow Stem Auger (HSA)
- Decontamination of sampling equipment
- Surveying
- Investigative-Derived Waste (IDW) management

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 SUMMARIZATION

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.

Safe Work Permits issued for all Exclusion Zone activities (See Section 10.10) will use elements defined in Table 5-1 as it's 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.

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TABLE 5-1
TASKS/HAZARDS/CONTROL MEASURES COMPENDIUM FOR
BUILDING 351 FLEET TRAINING FACILITY, NAVAL STATION MAYPORT, FLORIDA

Tasks/Operation/ Locations	Anticipated Hazards	Recommended Control Measures	Hazard Monitoring	Personal Protective Equipment	Decontamination Procedures
Soil boring activities using direct-push technologies (DPT) and Monitoring well installation using hollow stem auger techniques (HSA)	***Chemical hazards:*** 1) Air/particulate/water borne contaminants primarily consisting of VOCs from diesel fuel components. Further information on these contaminants and other potential contaminants is presented in Table 6-1. 2) Transfer of contamination into clean areas or onto persons ***Physical hazards:*** 3) Heavy equipment hazards (pinch/compression points, rotating equipment, hydraulic lines, etc.) 4) Noise 5) Energized systems 6) Lifting (muscle strains and pulls) 7) Slip, trips, and falls 8) Vehicular and foot traffic ***Natural hazards:*** 9) Insect/animal bites and stings 10) Ambient temperature extremes (heat stress) 11) Inclement weather	1) Use real-time monitoring instrumentation, action levels, and identified PPE to control exposures to potentially contaminated media (e.g. air, water, soils, etc.). Generation of dusts should be minimized to the greatest extent possible. If airborne dusts are observed, area wetting methods will be used. If area wetting methods are not feasible, termination of activities will be used to minimize exposure to excessive airborne dusts. 2) Decontaminate all equipment and supplies between boreholes and prior to leaving the site. 3) All equipment to be used will be - Inspected in accordance with Federal safety and transportation guidelines, OSHA (1926.600,.601,.602), and manufacturers design. - Operated by qualified operators, and knowledgeable ground crew. - Used within establish safe zones and with clearly demarcated routes of approach. - All personnel not directly supporting the drilling operation will remain at least 30 feet from the point of operation. - Drilling, drill masts or other projecting devices shall be at least 20 feet from overhead power sources and a minimum of 3 feet from underground utilities unless the exact location of the underground utility is known. - Hand signals will be established prior to the commencement of drilling. - The driller and helper can simultaneously handle moving augers or flights only when there is a standby person to activate the emergency stop device. - The driller must be at the controls while tools are rotating unless all personnel are clear of the rotating equipment. - A long handled shovel or equivalent shall be used to clear away drill cuttings from the hole and rotating equipment. Hands or feet shall **not** be used for this purpose. - A remote sampling device must be used to sample drill cuttings near rotating tools. The driller shall shutdown operations if the sampler is near the tools. - Only manufacturer approved equipment may be used in conjunction with equipment repair procedures (i.e. pins for auger flights etc.). - Only climb a drill mast when equipment is stopped and secure. - Use ANSI approved fall protection (i.e., belts, lanyards) or portable ladders which meet OSHA's requirements when climbing drill masts. - Work areas will be kept clear of clutter. - Secure all loose articles to avoid possible entanglement. - All equipment shall be equipped with movement warning systems. - All personnel working in high equipment traffic areas are required to wear reflective vests for high visibility. - All 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 insure its operational status. - Areas will be inspected prior to the movement of drill rigs and support vehicles to eliminate any physical hazards. This will be the responsibility of the FOL and/or SSO. - Drill rigs and support vehicles will be moved no closer than 3 feet to floor openings, pits, etc. 4) Hearing protection will be used during all subsurface activities. 5) All utility clearances shall be obtained prior to subsurface activities. Prior to any subsurface investigations, the locations of all underground utilities will be identified and marked. Obtain written permit clearance prior to all subsurface investigations. See Attachment V Utility Locating and Excavation Clearance. 6) Use machinery or multiple personnel for heavy lifts. Use proper lifting techniques. 7) Preview work locations for unstable/uneven terrain. 8) Traffic and equipment considerations are to include the following: - Establish safe zones of approach (i.e. Boom + 3 feet). - Secure all loose articles to avoid possible entanglement. - All equipment shall be equipped with movement warning systems. 9) Avoid nesting areas, use commerically available insect repellents. Report potential hazards to the SSO 10) Wear appropriate clothing for weather conditions. Provide acceptable shelter and liquids for field crews. Additional information regarding heat stress is provided in Section 4 of the TtNUS Health and Safety Guidance Manual. 11) Suspend or terminate operations until directed otherwise by SSO	A Photoionization Detector (PID) w/ 9.24 eV UV lamp source or higher, or a Flame Ionization Detector (FID), will be used as follows: Source monitoring will be conducted at regular intervals as determined by the SSO. Volatile organic vapor concentrations will be measured using a PID or FID. Work shall be stopped and all workers evacuated from the area if any sustained breathing zone readings above 50 ppm are measured. Workers shall remain in an unaffected area until readings subside or until further determinations are made by the SSO.	All subsurface operations are to be initiated in Level D protection. Level D protection constitutes the following minimum protection - Standard field attire (Sleeved shirt; long pants) - Tyvek coveralls and disposable boot covers if surface contamination is present or if the potential exists for soiling work attire. PVC splash suits may be used instead of Tyvek coveralls where potential exists for splash with free product - Nitrile gloves or leather gloves with surgical style inner gloves - Steel toe safety shoes - Safety glasses - Hardhat - Reflective vest for high traffic areas - Hearing protection for high noise areas, as directed by the SSO. **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.	**Personnel Decontamination** will consist of a soap/water wash and rinse for reusable outer protective equipment (boots, gloves, PVC splash suits, as applicable). The decon function will take place at an area adjacent to the site activities. This procedure will consist of: - Equipment drop - Soap/water wash and rinse of reusable PPE (e.g., outer boots and gloves), as applicable - Removal of reusable outer PPE (rubber boots, gloves, etc.) - Soap/water wash and rinse of PVC splash suit, as applicable - Sequential removal and disposal of non-reusable PPE items in the following order (Tyvek/PVC coveralls, inner gloves - Wash hands and face and leave exclusion zone.

TABLE 5-1
TASKS/HAZARDS/CONTROL MEASURES COMPENDIUM FOR
BUILDING 351 FLEET TRAINING FACILITY, NAVAL STATION MAYPORT, FLORIDA

Tasks/Operation/ Locations	Anticipated Hazards	Recommended Control Measures	Hazard Monitoring	Personal Protective Equipment	Decontamination Procedures
Multi-media sampling including soils (surface and subsurface); and water (groundwater) This activity may also include IDW sampling activities and performance of any in-situ aquifer testing.	***Chemical hazards:*** 1) Air/particulate/water borne contaminants primarily consisting of VOCs from diesel fuel components. Further information on these contaminants and other potential contaminants is presented in Table 6-1. 2) Transfer of contamination into clean areas ***Physical hazards:*** 3) Noise 4) Lifting (muscle strains and pulls) 5) Pinches and compressions 6) Slip, trips, and falls 7) Vehicular and foot traffic ***Natural hazards:*** 8) Insect/animal bites and stings 9) Ambient temperature extremes (heat stress) 10) Inclement weather	1) Use real-time monitoring instrumentation, action levels, and identified PPE to control exposures to potentially contaminated media (e.g. air, water, soils). Generation of dusts should be minimized to the greatest extent possible. If airborne dusts are observed, area wetting methods will be used. If area wetting methods are not feasible, termination of activities will be used to minimize exposure to observed airborne dusts. 2) Decontaminate all equipment and supplies between sampling locations and prior to leaving the site. 3) When sampling at the drill rig or DPT use hearing protection. The use of hearing protection outside of 25 feet from the drill rig or Geoprobe should be incorporated under the following condition: If you have to raise your voice to talk to someone who is within 2 feet of your location, hearing protection must be worn. 4) Use machinery or multiple personnel for heavy lifts. Use proper lifting techniques. 5) Use pinch bars or other equipment to keep hands from the point of operation. - A remote sampling device must be used to sample drill cuttings near rotating tools. The equipment operator shall shutdown machinery if the sampler is near moving machinery parts. 6) Preview work locations for unstable/uneven terrain. 7) Traffic and equipment considerations are to include the following: - Establish safe zones of approach (i.e. Boom + 5 feet). - Secure all loose articles to avoid possible entanglement. - All equipment shall be equipped with movement warning systems. 8) Avoid nesting areas, use commerically available insect repellents. Report potential hazards to the SSO. 9) Wear appropriate clothing for weather conditions. Provide acceptable shelter and liquids for field crews. Additional information regarding heat stress concerns is provided in section 4 of the TtNUS Health and Safety Guidance Manual. 10) Suspend or terminate operations until directed otherwise by SSO	A Photoionization Detector (PID) w/ 9.24 eV UV lamp source, or a Flame Ionization Detector (FID), will be used to monitor for applicable site contaminants. Source monitoring will be conducted at regular intervals as determined by the SSO. Volatile organic vapor concentrations will be measured using a PID or FID. Work shall be stopped and all workers evacuated from the area if any sustained breathing zone readings above 50 ppm are measured. Workers shall remain in an unaffected area until readings subside or until further determinations are made by the SSO.	Level D protection will be utilized for the initiation of all sampling activities. Level D - (Minimum Requirements) - Standard field attire (sleeved shirt; long pants) - Tyvek coveralls and disposable boot covers if surface contamination is present or if the potential exists for soiling work attire. PVC splash suits may be used instead of Tyvek coveralls where potential exists for splash with free product - Nitrile gloves or layered surgical style inner gloves for sampling - Safety shoes (steel toe/shank) - Safety glasses - Hardhat (when overhead hazards exists, or identified as a operation requirement) - Reflective vest for high traffic areas - Hearing protection for high noise areas. **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.	**Personnel Decontamination** will consist of a soap/water wash and rinse for reusable outer protective equipment (boots, gloves, PVC splash suits, as applicable). The decon function will take place at an area adjacent to the site activities. This procedure will consist of: - Equipment drop - Soap/water wash and rinse of reusable PPE (e.g., outer boots and gloves), as applicable - Removal of reusable outer PPE (rubber boots, gloves, etc.) - Soap/water wash and rinse of PVC splash suit, as applicable - Sequential removal and disposal of non-reusable PPE items in the following order (Tyvek/PVC coveralls, inner gloves - Wash hands and face and leave exclusion zone. **Equipment Decontamination** Sampling equipment will be decontaminated as per the requirements in the Sampling and Analysis Plan and/or Work Plan. MSDS for any decon solutions (Alconox, isopropanol, etc.) will be obtained and used to determine proper handling / disposal methods and protective measures (PPE, first-aid, etc.). All equipment used in the exclusion zone will require a complete decontamination between locations and prior to removal from the site. The FOL or the SSO will be responsible for evaluating equipment arriving onsite and that which is to leave the site. No equipment will be authorized access or exit without this evaluation.

TABLE 5-1
TASKS/HAZARDS/CONTROL MEASURES COMPENDIUM FOR
BUILDING 351 FLEET TRAINING FACILITY, NAVAL STATION MAYPORT, FLORIDA

Tasks/Operation/ Locations	Anticipated Hazards	Recommended Control Measures	Hazard Monitoring	Personal Protective Equipment *Items in italics are deemed optional as conditions or the FOL or SSO require*	Decontamination Procedures
Mobilization/ Demobilization	***Physical hazards*:** 1) Lifting (muscle strains and pulls) 2) Pinches and compressions 3) Slip, trips, and falls 4) Heavy equipment hazards (rotating equipment, hydraulic lines, etc.) 5) Vehicular and foot traffic ***Natural hazards*:** 6) Insect/animal bites and stings 7) Ambient temperature extremes (heat stress) 8) Inclement weather	1) Use machinery or multiple personnel for heavy lifts. Use proper lifting techniques. 2) Use pinch bars or other equipment to keep hands from the machine point of operation. 3) Preview work locations for unstable/uneven terrain. 4) All equipment will be: - Inspected in accordance with OSHA, and manufacturers design. - Operated by qualified operators, and knowledgeable ground crew. 5) Traffic and equipment considerations are to include the following: - Establish safe zones of approach (i.e. Boom + 5 feet). - Secure all loose articles to avoid possible entanglement. - All equipment shall be equipped with movement warning systems. 6) Avoid nesting areas, use comericallyavailable insect repellents. Report potential hazards to the SSO. 7) Wear appropriate clothing for weather conditions. Provide acceptable shelter and liquids for field crews. Additional information regarding heat stress concerns is provided in section 4 of the TtNUS Health and Safety Guidance Manual. 8) Suspend or terminate operations until directed otherwise by SSO.	Not required	Level D - (Minimum Requirements) - Standard field attire (Sleeved shirt; long pants) - Steel toe safety shoes - *Safety glasses* - *Hardhat (when overhead hazards exists, or identified as a operation requirement)* - *Reflective vest for high traffic areas* - *Hearing protection for high noise areas, or as directed on an operation by operation scenario.* **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.	Not required
Decontamination of Sampling and Heavy Equipment	***Chemical hazards:*** 1) Air/particulate/water borne contaminants primarily consisting of VOCs from diesel fuel components. Further information on these contaminants and other potential contaminants is presented in Table 6-1. 2) Decontamination fluids - Liquinox (detergent), acetone or isopropanol ***Physical hazards:*** 3) Lifting (muscle strains and pulls) 4) Noise 5) Flying projectiles 6) Vehicular and foot traffic 7) Slips, trips, and falls ***Natural hazards:*** 8) Ambient temperature extremes (heat stress) 9) Inclement weather	1) and 2) Employ protective equipment to minimize contact with site contaminants and hazardous decontamination fluids. Obtain manufacturer's MSDS for any decontamination solvents used onsite. Use appropriate PPE as identified on MSDS. All chemicals used must be listed on the Chemical Inventory for the site, and site activities must be consistent with the Hazard Communication section of the TtNUS Health and Safety Guidance Manual (Section 5). 3) Use multiple persons where necessary for lifting and handling sampling equipment for decontamination purposes. 4) Wear hearing protection when operating pressure washer. 5) Use eye and face protective equipment when operating pressure washer. All other personnel must be restricted from the area. 6) Traffic and equipment considerations are to include the following: - Establish safe zones of approach (i.e. Boom + 5 feet). - Secure all loose articles to avoid possible entanglement. - All equipment shall be equipped with movement warning systems. 7) Preview work locations for unstable/uneven terrain. 8) Wear appropriate clothing for weather conditions. Provide acceptable shelter and liquids for field crews. Additional information regarding heat stress concerns is provided in section 4 of the TtNUS Health and Safety Guidance Manual. 9) Suspend or terminate operations until directed otherwise by SSO	Use visual observation, and real-time monitoring instrumentation to ensure all equipment has been properly cleaned of contamination and dried. After decon is completed, screen equipment with a PID/FID. If any elevated readings (i.e., above background) are observed, perform decon again and re-screen. Repeat until no elevated PID/FID readings are noted.	*For Heavy Equipment* This applies to high pressure soap/water, steam cleaning wash and rinse procedures. Level D Minimum requirements - - Standard field attire (long sleeved shirt; long pants) - Steel toe safety shoes - Chemical resistant boot covers - Nitrile outer gloves - PVC Rainsuits or PE or PVC coated Tyvek - Safety glasses underneath a splash shield - Hearing protection (plugs or muffs) *For sampling equipment (trowels, MacroCore Samplers, bailers, etc.)*, the following PPE is required Level D Minimum requirements - - Standard field attire (long sleeved shirt; long pants) - Steel toe safety shoes - Nitrile outer gloves - Safety glasses In the event of overspray of chemical decontamination fluids employ PVC Rainsuits or PE or PVC coated Tyvek as necessary. **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 considerations associated with any identified task.	**Personnel Decontamination** will consist of a soap/water wash and rinse for reusable outer protective equipment (boots, gloves, PVC splash suits, as applicable). The decon function will take place at an area adjacent to the site activities. This procedure will consist of: - Equipment drop - Soap/water wash and rinse of reusable PPE (e.g., outer boots and gloves), as applicable - Removal of reusable outer PPE (rubber boots, gloves, etc.) - Soap/water wash and rinse of PVC splash suit, as applicable - Sequential removal and disposal of non-reusable PPE items in the following order (Tyvek/PVC coveralls, inner gloves - Wash hands and face and leave exclusion zone. **Equipment Decontamination** - All heavy equipment decontamination will take place at a centralized decontamination pad utilizing steam or pressure washers. Heavy equipment such as the drill rig or DPT will have the wheels and tires cleaned along with any loose debris removed, prior to transporting to the central decontamination area. All site vehicles will be restricted access to exclusion zones, or also have their wheels/tires sprayed off as not to track mud onto the roadways servicing this installation. Roadways shall be cleared of any debris resulting from the onsite activity. All equipment used in the exclusion zone will require a complete decontamination between locations and prior to removal from the site. The FOL or the SSO will be responsible for evaluating equipment arriving onsite and that which is to leave the site. No equipment will be authorized access or exit without this authorization. Evaluation will consist of - Visual inspection - Scanning equipment with monitoring instruments

TABLE 5-1
TASKS/HAZARDS/CONTROL MEASURES COMPENDIUM FOR
BUILDING 351 FLEET TRAINING FACILITY, NAVAL STATION MAYPORT, FLORIDA

Tasks/Operation/ Locations	Anticipated Hazards	Recommended Control Measures	Hazard Monitoring	Personal Protective Equipment *Items in italics are deemed optional as conditions or the FOL or SSO dictate.*	Decontamination Procedures
Surveying	***Physical hazards:*** 1) Lifting (muscle strains and pulls) 2) Slip, trips, and falls 3) Vehicular (highway and foot) traffic ***Natural hazards:*** 4) Inclement weather 5) Insects/animal bites and stings	1) Use machinery or multiple personnel for heavy lifts. Use proper lifting techniques. 2) Preview work locations for unstable/uneven terrain. Maintain a minimum of two feet from floor openings. 3) Surveying activities conducted in high traffic areas will require the use of reflective vests and warning signs to inform motorists of the work activity to proceed with caution. 4) Suspend or terminate operations until directed otherwise by SSO 5) Avoid nesting areas, use commerically available insect repellents. Report potential hazards to the SSO.	Not required Excessive chemical contaminant concentrations impacting field crews during this task is not anticipated.	Level D - (Minimum Requirements) - Standard field attire (Long-sleeved shirt; long pants) - Safety shoes (steel toe/shank) - *Tuck shirt into pants and pants into socks where ticks or other insects are a concern* - *Reflective vest for high traffic areas* - *Hearing protection for high noise areas, or as directed on an operation by operation scenario.* **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.	Not required
IDW management and moving IDW drums to storage areas	***Chemical hazards:*** 1) Air/particulate/water borne contaminants primarily consisting of VOCs from diesel fuel components. Further information on these contaminants and other potential contaminants is presented in Table 6-1. 2) Transfer of contamination into clean areas ***Physical hazards:*** 3) Noise 4) Lifting (muscle strains and pulls) 5) Pinches and compressions 6) Slip, trips, and falls 7) Vehicular and foot traffic ***Natural hazards:*** 8) Insect/animal bites and stings 9) Ambient temperature extremes (heat stress) 10) Inclement weather	1) Employ real-time monitoring instrumentation, action levels, and identify PPE to control exposures to potentially contaminated media (e.g. air, water, soils). 2) Decontaminate all equipment and supplies, if they become contaminated, between locations and prior to leaving the site. 3) When working near heavy equipment, use hearing protection. 4) Use machinery or multiple personnel for heavy lifts. Use proper lifting techniques. 5) Use pinch bars or other equipment to keep hands from the point of operation. 6) Preview work locations for unstable/uneven terrain. 7) Traffic and equipment considerations are to include the following: - Establish safe zones of approach (i.e. Boom + 5 feet). - Secure all loose articles to avoid possible entanglement. - All equipment shall be equipped with movement warning systems. 8) Avoid nesting areas, use commerically available insect repellents. Report potential hazards to the SSO. 9) Wear appropriate clothing for weather conditions. Provide acceptable shelter and liquids for field crews. Additional information regarding cold/heat stress concerns is provided in section 4 of the TtNUS Health and Safety Guidance Manual. 10) Suspend or terminate operations until directed otherwise by SSO.	A Photoionization Detector (PID) w/ 9.24 eV UV lamp source, or a Flame Ionization Detector (FID), will be used to monitor for applicable site contaminants. Source monitoring will be conducted at regular intervals as determined by the SSO. Volatile organic vapor concentrations will be measured using a PID or FID. Work shall be stopped and all workers evacuated from the area if any sustained breathing zone readings above 50 ppm are measured. Workers shall remain in an unaffected area until readings subside or until further determinations are made by the SSO.	Level D protection will be utilized for the initiation of all sampling activities. Level D - (Minimum Requirements) - Standard field attire (sleeved shirt; long pants) - Tyvek coveralls and disposable boot covers if surface contamination is present or if the potential exists for soiling work attire. PVC splash suits may be used instead of Tyvek coveralls where potential exists for splash with free product - Cotton/leather work gloves with surgical style inner gloves - Steel toe safety shoes - Safety glasses - Hardhat (when overhead hazards exists, or identified as a operation requirement) - Reflective vest for high traffic areas - Hearing protection for high noise areas. **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	**Personnel Decontamination** will consist of a soap/water wash and rinse for reusable outer protective equipment (boots, gloves, PVC splash suits, as applicable). The decon function will take place at an area adjacent to the site activities. This procedure will consist of: - Equipment drop - Soap/water wash and rinse of reusable PPE (e.g., outer boots and gloves), as applicable - Removal of reusable outer PPE (rubber boots, gloves, etc.) - Soap/water wash and rinse of PVC splash suit, as applicable - Sequential removal and disposal of non-reusable PPE items in the following order (Tyvek/PVC coveralls, inner gloves - Wash hands and face and leave exclusion zone. .

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

The potential health hazards associated with include inhalation, ingestion, and dermal contact of various contaminants that may be present in groundwater. The following has been identified as the primary class of these contaminants, including the specific compound(s) of interest:

Analytical results from previous soil vapor sampling activities at the Fleet Training Facility, Building 351 indicate the presence of volatile organic compounds (VOCs) associated with diesel fuel. Additionally, air samples collected from the headspace of soil samples (on the day of a major spill) using an Organic Vapor Analyzer (OVA) Photo Ionization Detector (PID) indicated the presence of VOCs. All 20 air samples taken, had concentrations of VOCs ranging from 3.6 ppm to 420.0 ppm. Subsequently, 7 tons of soil was removed from the area. Later soil screening results indicated that hydrocarbon impacted soil had been removed down to the water table. Results of the confirmatory soil analyses showed hydrocarbon vapor concentrations below State of Florida clean up target levels. Airborne concentrations of this magnitude are unlikely to present a significant occupational exposure concern, since concentrations in worker breathing zones would be significantly diluted.

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., monitoring well installation, sampling). Exposure to these compounds is most likely to occur through ingestion and inhalation of contaminated water, or hand-to-mouth contact during intrusive activities. For this reason, PPE and basic hygiene practices (washing face and hands before leaving site) will be extremely important. Inhalation exposure will be avoided by using appropriate PPE and engineering controls where necessary. Significant exposure via inhalation is not anticipated during the planned scope of work.

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

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.

TABLE 6-1
CHEMICAL, PHYSICAL, AND TOXICOLOGICAL DATA
BUILDING 351, NAVAL STATION MAYPORT, FLORIDA

Substance	CAS No.	Air Monitoring/Sampling Information		Exposure Limits	Warning Property Rating	Physical Properties	Health Hazard Information
Diesel Range Organics (as Diesel Fuel No.2-D)	Mixture	Components of this substance will be detected readily; however, no documentation exists as to the relative response ratio of either PID or FID.	Air sampling use charcoal tube as a collection media; carbon disulfide desorption; GC/FID detection. Sampling and analytical protocol in accordance with NIOSH Method #1550.	OSHA/NIOSH/ ACGIH: 5 mg/m^3 as mineral oil mist. In addition NIOSH and ACGIH establish 10 mg/m^3 as a STEL.	Kerosene odor **Recommended air-purifying cartridges:** Organic vapor **Recommended gloves:** Nitrile	**Boiling Pt:** <170-400°F; 77-204°C **Melting Pt:** Not available **Solubility:** Negligible **Flash Pt:** 125°F; 52°C **LEL/LFL:** 0.6% **UEL/UFL:** 7.5% **Vapor Density:** >5 **Vapor Pressure:** <1 mmHg @ 70°F; 21°C **Specific Gravity:** 0.86 **Incompatibilities:** strong oxidizers, halogens, and hypochlorites **Appearance and odor:** Colorless to amber with a kerosene odor	Prolonged or repeated exposures to this product may cause skin and eye irritation. Because of the defatting capabilities ,this exposure may lead to a dermatitis condition. High vapor concentrations are irritating to the eyes and respiratory tract. Exposure to high airborne concentrations may result in narcotic effects, including dizziness, headaches, and anesthetic to unconsciousness. High concentrations in a confined space may adequately displace oxygen thereby resulting in suffocation.

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. All 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

In order to accurately monitor for any substances which may present an exposure potential to site personnel, a Photoionization Detector (PID) using a lamp energy of 9.24 eV or higher will be used. This instrument will be used to monitor potential source areas and to screen the breathing zones of employees during site activities. The PID has been selected because it is capable of detecting the organic vapors of concern (NOTE**:** A Flame Ionization Detector [FID] may be used as an alternative to the PID).

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 increases 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. Operational checks and field calibration will be performed on all 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). All calibration efforts must be documented. Figure 7-1 is provided for documenting these calibration efforts. This information may instead be recorded in a field operations logbook, provided that all of the information specified in Figure 7-1 is recorded. This required information includes the following:

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

FIGURE 7-1

DOCUMENTATION OF FIELD CALIBRATION

SITE NAME: _____ **PROJECT NO.:** _____

Date of Calibration	Instrument Name and Model	Instrument I.D. Number	Person Performing Calibration	Instrument Settings		Instrument Readings		Calibration Standard (Lot Number)	Remarks/ Comments
				Pre-Calibration	Post-Calibration	Pre-Calibration	Post-Calibration		

8.0 TRAINING/MEDICAL SURVEILLANCE REQUIREMENTS

8.1 INTRODUCTORY/REFRESHER/SUPERVISORY TRAINING

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

8.1.1 Requirements for TtNUS Personnel

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

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

8.1.2 Requirements for Subcontractors

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

FIGURE 8-1
TRAINING LETTER

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

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

Month, day, year

Mr. Richard M. Ofsanko
Tetra Tech NUS, Inc.
Task Order Manager
794 South Military Trail
Deerfield Beach, Florida 33442

Subject: HAZWOPER Training for NAVSTA Mayport, Florida

Dear Mr. Ofsanko:

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

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

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

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

Sincerely,

(Name and Title of Company Officer)

Enclosed: Training Certificates

8.2 SITE-SPECIFIC TRAINING

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

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

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

8.3 MEDICAL SURVEILLANCE

8.3.1 Medical Surveillance Requirements for TtNUS Personnel

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

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

FIGURE 8-2

SITE-SPECIFIC TRAINING DOCUMENTATION

My signature below indicates that I am aware of the potential hazardous nature of performing remedial investigation activities at NAVSTA Mayport, Florida and that I have received site-specific training which included the elements presented below:

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

My signature below indicates that I have been given the opportunity to ask questions and that all of my questions have been answered to my satisfaction, and that the dates of my training and medical surveillance indicated below are accurate.

Name (Printed and Signature)	Site-Specific Training Date	40-Hour Training (Date)	8-Hour Refresher Training (Date)	8-Hour Supervisory Training (Date)	Medical Exam

8.3.2 Medical Surveillance Requirements for Subcontractors

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

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

8.3.3 Requirements for All Field Personnel

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

8.4 SUBCONTRACTOR EXCEPTIONS

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

FIGURE 8-3

SUBCONTRACTOR MEDICAL APPROVAL FORM

For employees of _____
Company Name

Participant Name: _____ Date of Exam: _____

Part A

The above-named individual has:

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

   ( ) qualified to perform work at the NAVSTA Mayport work site
   ( ) not qualified to perform work at the NAVSTA Mayport work site

   and,

2. Undergone a physical examination as per OSHA 29 CFR 1910.134(b)(10) and found to be medically -

   ( ) qualified to wear respiratory protection
   ( ) not qualified to wear respiratory protection

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

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

Part B

I, _____, have examined _____
Physician's Name (print) Participant's Name (print)
and have determined the following information:

FIGURE 8-3
SUBCONTRACTOR MEDICAL APPROVAL FORM
PAGE TWO

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

   _____
   _____
   _____

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

   _____
   _____
   _____

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

   _____
   _____
   _____

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

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

( ) may
( ) may not

perform his/her assigned task.

Physician's Signature _____

Address _____

Phone Number _____

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

_____
Address

FIGURE 8-4

MEDICAL SURVEILLANCE LETTER

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

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

Month, day, year

Mr. Richard M. Ofsanko
Tetra Tech NUS, Inc.
Task Order Manager
794 South Military Trail
Deerfield Beach, Florida 33442

Subject: HAZWOPER Training for NAVSTA Mayport, Florida

Dear Mr. Ofsanko:

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

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

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

Sincerely,

(Name and Title of Company Officer)

9.0 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

All 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. All inspections will be documented in the Project Logbook.

9.4 PERSONNEL TRAINING AND SPILL PREVENTION

All 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 following represent the Exclusion Zone boundaries for the following identified tasks:

- Monitoring Well Installation – The boundary perimeter will be established by determining the height of the mast, plus five feet. Therefore, if it is a 35-foot mast plus 5 feet equals a 40-foot boundary surrounding the point of operation.

- Well Development – 10 feet surrounding the well head and discharge point.

- Groundwater sampling – 10 feet surrounding the well head.

- Surface/subsurface soils – 5 feet surrounding the sample collection point.

- Decontamination (heavy equipment – steam/pressure washers) – 35 feet surrounding the point of operation. This will take place at a centralized location.

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. In all cases, the Support Zones will be established at areas of the site where exposure to site contaminants would not be expected during normal working conditions or foreseeable emergencies.

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, OSHA, etc.)
- NAVSTA Mayport personnel
- Other authorized visitors

All 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, all 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:

- All 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.

- All 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, all 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. All visitors are required to observe the protective equipment and site restrictions in effect at the site at the time of their visit. Any and all visitors not meeting the requirements stipulated in this plan will not be permitted to enter the site operational zones during planned activities. Any incidence of unauthorized site visitation will cause the termination of all 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 and 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 all chemicals brought on site. The contents of these documents will be reviewed by the SSO with the user(s) of the chemical substances prior to any actual use or application of the substances on site. A chemical inventory of all chemicals used on site will be developed using 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

All Exclusion Zone work conducted in support of this project will be performed using Safe Work Permits to guide and direct field crews on a task by task basis. An example of the Safe Work Permit to be used is illustrated in Figure 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 all 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. All 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 (To be filled in by person performing work)

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

II. Names: _____

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

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

IV. Protective equipment required
Level D ☐ Level B ☐
Level C ☐ Level A ☐
Detailed on Reverse

Respiratory equipment required

Full face APR	☐	Escape Pack	☐
Half face APR	☐	SCBA	☐
SKA-PAC SAR	☐	Bottle Trailer	☐
Skid Rig	☐	None	☐

Modifications/Exceptions: _____

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

_____ _____ _____

_____ _____ _____

VI. Additional Safety Equipment/Procedures

Hardhat	☐ Yes	☐ No	Hearing Protection	☐ Yes	☐ No
Safety Glasses	☐ Yes	☐ No	Safety belt/harness	☐ Yes	☐ No
Chemical/splash goggles	☐ Yes	☐ No	Radio	☐ Yes	☐ No
Splash Shield	☐ Yes	☐ No	Barricades	☐ Yes	☐ No
Splash suits/coveralls	☐ Yes	☐ No	Gloves (Type)	☐ Yes	☐ No
Steel toe/shank	☐ Yes	☐ No	Work/rest regimen	☐ Yes	☐ No
Workboots	☐ Yes	☐ No			

Modifications/Exceptions: _____

VII. Procedure review with permit acceptors

	Yes	NA		Yes	NA
Safety shower/eyewash (Location & Use)	☐	☐	Emergency alarms	☐	☐
Procedure for safe job completion	☐	☐	Evacuation routes	☐	☐
Contractor tools/equipment inspected	☐	☐	Assembly points	☐	☐

VIII. Equipment Preparation

	Yes	NA
Equipment drained/depressured	☐	☐
Equipment purged/cleaned	☐	☐
Isolation checklist completed	☐	☐
Electrical lockout required/field switch tested	☐	☐
Blinds/misalignments/blocks & bleeds in place	☐	☐
Hazardous materials on walls/behind liners considered	☐	☐

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

If yes, contact Health Science, Pittsburgh, PA Office

X. Special instructions, precautions: _____

Permit Issued by: _____ Permit Accepted by: _____

Job Completed by: _____ Date: _____

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 all 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 all 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 all site personnel. These documents should match all the listings on the chemical inventory list for all substances employed on-site. It is acceptable to have these documents within a central folder and the chemical inventory as the table of contents.

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

Site Clearance (maintained) - This list is found within the training section of the HASP (See Figure 8-2). This list identifies all site personnel, dates of training (including site-specific training), and medical surveillance. The lists indicates not only clearance but also status. If personnel do not meet these requirements, they do not enter the site while site personnel are engaged in activities.

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

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

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

Personnel Monitoring (maintained) - All 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
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

CASE NO. _____

TETRA TECH NUS, INC.

INJURY/ILLNESS PROCEDURE
WORKER'S COMPENSATION PROGRAM

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

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

ADDITIONAL QUESTIONS REGARDING WORKER'S COMPENSATION:

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

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

WHO IS COVERED:

All employees of Tetra Tech, whether they are on a full-time, part-time or temporary status, working in an office or in the field, are entitled to worker's compensation benefits. All employees must follow the above injury/illness reporting procedures. Consultants, independent contractors, and employees of subcontractors are <u>not</u> covered by Tetra Tech's Worker's Compensation plan.

WHAT IS COVERED:

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

CASE NO. _____

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

To: Corporate Health and Safety Manager
Human Resource Administrator

Prepared by:_____

Position:_____

Project Name: _____

Office: _____

Project No. _____

Telephone:_____

Information Regarding Injured or Ill Employee:

Name: _____

Office: _____

Home address: _____

Gender: M ☐ F ☐ No. of dependents: _____

_____

Marital status: _____

Home telephone: _____

Date of birth: _____

Occupation (regular job title): _____

Social Security No.: _____

Department: _____

Date of Accident: _____ **Time of Accident:** _____

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

Street address: _____

City, state, and zip code: _____

County: _____

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

TETRA TECH, INC.
INJURY/ILLNESS REPORT

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

Witness(es):

Name:

Address:

Telephone:

Describe the Illness or Injury and Part of Body Affected:

Name the Object or Substance which Directly Injured the Employee:

Medical Treatment Required:

☐ No ☐ Yes ☐ First Aid Only

Physician's Name: _____

Address: _____

Hospital or Office Name: _____

Address: _____

_____

Telephone No.: _____

Lost Work Days:

☐ No. of Lost Work Days _____

Last Date Worked _____

Time Employee Left Work _____

Date Employee Returned to Work _____

☐ No. of Restricted Work Days _____

☐ None

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

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

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

Date of Report: _____ Time of Report: _____

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

To be completed by Human Resources:

Date of hire: Hire date in current job:

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

Position at time of hire:

Shift hours:

State in which employee was hired:

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

Temporary job end date:

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

Date reported: Reported by:

TeleClaim phone number:

TeleClaim account number:

Location code:

Confirmation number:

Name of contact:

Field office of claims adjuster:

ATTACHMENT II

STANDARD OPERATING PROCEDURE FOR 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 service locating and excavation clearance. It is the policy of TtNUS to provide a safe and healthful work environment for the protection of our employees. The purpose of this SOP is to aid in achieving the objectives of the TtNUS Utility Locating and Clearance Policy. The TtNUS Utility Locating and Clearance Policy should be reviewed by anyone involved with underground or overhead utility services.

2.0 SCOPE

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

3.0 GLOSSARY

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

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

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

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

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

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

4.0 RESPONSIBILITIES

Project Manager - Responsible for ensuring that all field activities are conducted in accordance with this procedure and the TtNUS Utility Locating and Clearance Policy.

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

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

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 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 on client properties. The following procedure must be followed prior to beginning any excavation that might potentially be in the vicinity of underground utility services.

Where the positive identification and de-energizing of underground utilities cannot be obtained and confirmed using the following steps, the PM is responsible for arranging for the procurement of a qualified, experienced, utility locating contractor 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 site inspection must be performed to compare the site plan information to actual conditions. Any findings must be documented and the site plan/maps revised. The area(s) of proposed excavation must be marked at the site in white paint or pin flags to notify personnel of the proposed excavation 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, asphalt/concrete scares and patches, and topographical depressions. Note the location of any emergency shut off switches. Any additional Information regarding utility locations shall be added to project maps upon completion of this exercise.

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 on (and comply with) property owner requirements. It is important to note that private property owners may require from 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 are to mark their respective lines within the specified time frame.

5. Utilities must be identified and their locations plainly marked using pin flags, spray paint, or other 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 location
red	electrical
yellow	gas, oil, steam
orange	telephone, communications
blue	water, irrigation, slurry
green	sewer, drain

6. Where utility locations are not confirmed with a high degree of confidence through drawings, schematics, location services, etc., the work area must be thoroughly investigated prior to beginning the excavation. In these situations, utilities must be identified using such methods as passive and intrusive surveys, physical probing, or hand auguring. Each method has advantages and disadvantages including complexity, applicability, and price.

7. At each location where trenching or excavating will occur using a backhoe or other heavy equipment and utility identifications and locations cannot be confirmed prior to groundbreaking, the soil must be probed with a hand augur or pole made of non-conductive material. If these efforts are not successful in clearing the excavation area of suspect utilities, hand shoveling must be performed for the perimeter of the intended excavation.

8. All uncovered utilities must be supported. 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 Health and Safety Manager. All repairs require that the line be locked-out/tagged-out prior to work.

5.2 Overhead Power Lines

If it is necessary to work within the minimum clearance distance of an overhead power line, the overhead line must be de-energized and grounded, or re-routed by the utility company or a registered electrician. If protective measures such as guarding, isolating, or insulating are provided, these precautions must be adequate to prevent employees from contacting such lines directly with any part of their body or indirectly though conductive materials, tools, or equipment.

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

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

6.0 UNDERGROUND LOCATING TECHNIQUES

6.1 Geophysical Methods

Geophysical methods include electromagnetics, magnetics, and ground penetrating radar. Additional details concerning the design and implementation of electromagnetic, magnetics, and ground penetrating radar surveys can be found in one or more of the TtNUS SOPs included in the References in Section 6.0.

Electromagnetics

Electromagnetic (EM) 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 good example of this type of geophysical equipment is an EM-61.

EM 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 EM surveys, simple magnetic locating and traced nonmetallic surveys.

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

Magnetics

Magnetic locators operate by detecting the relative amounts of buried ferrous metal. They are incapable of locating or identifying nonferrous utility lines but can be very useful for locating underground storage tanks (UST's) and steel utility lines. A good 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.

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 is 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. 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. High-quality hand-held thermal imagers are available from $15,000 to $30,000, with prices decreasing as new systems are introduced.

6.3 Intrusive Detection Surveys

Vacuum Excavation

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

Hand-auger Surveys

When the identification and location of underground utilities cannot be positively confirmed through document reviews and/or other physical methods, borings must be hand-augured for all locations where there is a potential to impact buried utilities. Hand auguring must be performed to depths of no less than 4 feet. The minimum hand auger depth that must be reached is to be determined considering the geographical location of the work site. This approach recognizes that the placement of buried utilities is influenced by frost line depths that vary by geographical region. Attachment 3 presents frost line depths for the regions of the continental United States. At a minimum, hand auger depths must be at least to the frost line depth plus two (2) feet, but never less than 4 feet below ground surface (bgs). For auguring, the hole must be reamed by hand to at least the diameter of the drill rig auger or bit prior to drilling. For soil gas surveys, the survey probe shall be placed as close as possible to the cleared hand auger. It is important that a post-hole digger is not used in place of a hand augur.

Tile Probe Surveys

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

7.0 REFERENCES

TtNUS Utility Locating and Clearance Policy

TtNUS SOP GH-3.1; Resistivity and Electromagnetic Induction

TtNUS SOP GH-3.2; Magnetic and Metal Detection Surveys

TtNUS SOP GH-3.4; Ground-penetrating Radar Surveys

ATTACHMENT 1
LISTING OF UNDERGROUND UTILITY CLEARANCE RESOURCES

Alabama Alabama Line Location (800) 292-8525 Tucson Blue Stake Center (800) 782-5348
Alaska Locate Call Center of Alaska Inc. (800) 478-3121
Arizona Arizona Blue Stake Inc. (800) 782-5348
Arkansas Arkansas One Call System Inc. (800) 482-8998
California Underground Service Alert North (800) 227-2600 Underground Service Alert South (800) 227-2600
Colorado Utility Notification Center of Colorado (800) 922-1987
Connecticut Call Before You Dig (800) 922-4455
Delaware Miss Utility of Delmarva (800) 282-8555
District of Columbia Miss Utility (800) 257-7777
Florida Call Sunshine (800) 432-4770
Georgia Utilities Protection Center Inc. (800) 282-7411
Idaho Palouse Empire Underground Coordinating Council (800) 882-1974 Utilities Underground Location Center (800) 424-5555 Kootenai Country Utility Coordinating Council (800) 428-4950 Shoshone County One Call (800) 398-3285 Dig Line (800) 342-1585 One Call Concepts (800) 626-4950
Illinois Julie Inc. (800) 892-0123 Digger (Chicago Utility Alert Network) (312) 744-7000
Indiana Indiana Underground Plant Protection Services (800) 382-5544
Iowa Underground Plant Location Service Inc. (800) 292-8989
Kansas

Kansas One-Call Center (800) 344-7233
Kentucky Kentucky Underground Protection Inc. (800) 752-6007
Louisiana Louisiana One Call (800) 272-3020
Maine Dig Safe – Maine (800) 225-4977
Maryland Miss Utility (800) 257-777 Miss Utility of Delmarva (800) 282-8555
Massachusetts Dig Safe – Massachusetts (800) 322-4844
Michigan Miss Dig System (800) 482-7171
Minnesota Gopher State One Call (800) 252-1166
Mississippi Mississippi One-Call System Inc. (800) 227-6477
Missouri Missouri One Call System Inc. (800) 344-7483
Montana Utilities Underground Location Center (800) 424-5555 Montana One Call Center (800) 551-8344
Nebraska Diggers Hotline of Nebraska (800) 331-5666
Nevada Underground Service Alert North (800) 227-2600
New Hampshire Dig Safe – New Hampshire (800) 225-4977
New Jersey New Jersey One Call (800) 272-1000
New Mexico New Mexico One Call System Inc. (800) 321-ALERT Las Cruces-Dona Utility Council (505) 526-0400
New York Underground Facilities Protection Organization (800) 962-7962 New York City: Long Island One Call Center (800) 272-4480
North Carolina The North Carolina One-Call Center Inc. (800) 632-4949
North Dakota Utilities Underground Location Center (800) 795-0555
Ohio Ohio Utilities Protection Service (800) 362-2764

Oil & Gas Producers Underground Protection Service (800) 925-0988

Oklahoma
Call Okie (800) 522-6543

Oregon
Utilities Underground Location Center (800) 424-5555

Douglas Utilities Coordinating Council (503) 673-6676

Josephine Utilities Coordinating Council (503) 476-6676

Rogue Basin Utility Coordinating Council (503) 779-6676

Utilities Notification Center (800) 332-2344

Pennsylvania
Pennsylvania One Call System Inc. (800) 242-1776

Rhode Island
Dig Safe – Rhode Island (800) 225-4977

South Carolina
Palmetto Utility Protection Service Inc. (800) 922-0983

South Dakota
South Dakota One Call (800) 781-7474

Tennessee
Tennessee One-Call System (800) 351-1111

Texas
Texas One Call System (800) 245-4545

Texas Excavation Safety System (800) 344-8377

Lone Star Notification Center (800) 669-8344

Utah
Blue Stakes Location Center (800) 662-4111

Vermont
Dig Safe – Vermont (800) 225-4977

Virginia
Miss Utility of Virginia (800) 552-7001

Miss Utility (800) 257-7777

Miss Utility of Delmarva (800) 441-8355

Washington
Utilities Underground Location Center (800) 424-5555

Grays Harbor & Pacific County Utility Coordinating Council (206) 535-3550

Utilities County of Cowlitz County (360) 425-2506

Chelan-Douglas Utilities Coordinating Council (509) 663-6111

Upper Yakima County Underground Utilities Council (800) 553-4344

Inland Empire Utility Coordinating Council (509) 456-8000

Palouse Empire Utilities Coordinating Council (800) 822-1974

Utilities Notification Center (800) 332-2344

West Virginia
Miss Utility of West Virginia Inc. (800) 245-4848

Wisconsin
Diggers Hotline Inc. (800) 242-8511

Wyoming
West Park Utility Coordinating Council (307) 587-4800

Call-In Dig-In Safety Council (800) 300-9811

Fremont County Utility Coordinating Council (800) 489-8023

Central Wyoming Utilities Coordinating Council (800) 759-8035

Southwest Wyoming One Call (307) 362-8888

Carbon County Utility Utility Coordinating Council (307) 324-6666

Albany County Utility Coordinating Council (307) 742-3615

Southeast Wyoming Utilities Coordinating Council (307) 638-6666

Wyoming One-Call (800) 348-1030

Utilities Underground Location Center (800) 454-5555

Converse County Utility Coordination Council (800) 562-5561

ATTACHMENT 2
UTILITY CLEARANCE FORM

Project No.: _____ Completed by: _____

Site Location: _____ Work Date: _____

Excavation Method/Overhead Equipment: _____

Circle One

1. Underground Utilities
   - 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
   - b) Excavation areas marked in the field? yes no N/A
   - e) Utilities located in the field? yes no N/A
   - f) Located utilities added to site maps? yes no N/A
   - 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 auguring performed? yes no N/A
     Auguring 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): _____

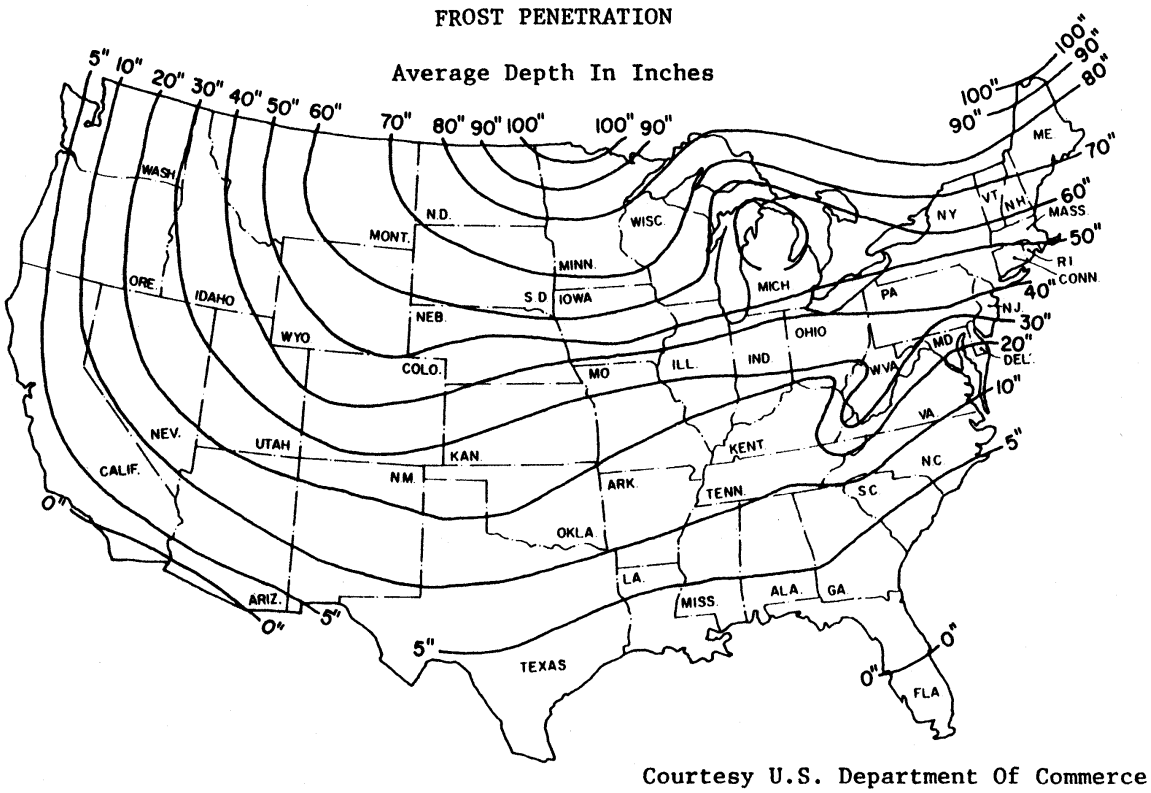
6. Approval:

_____ _____
Site Manager/Field Operations Leader Date

cc: PM/Project File
Program File

ATTACHMENT 3

FROST LINE PENETRATION DEPTHS BY GEOGRAPHIC LOCATION



Courtesy U.S. Department Of Commerce

ATTACHMENT III

EQUIPMENT INSPECTION CHECKLIST

EQUIPMENT INSPECTION

COMPANY:_____ **UNIT NO.**_____
FREQUENCY: Inspect daily, document prior to use and as repairs are needed.

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

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

Safety Guards:	**Yes**	**No**
– 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?_____	❒	❒
– All emergency shut offs have been identified and communicated to the field crew?_____	❒	❒
– Have emergency shutoffs been field tested? _____	❒	❒
– Results?_____	❒	❒
– Are any structural members bent, rusted, or otherwise show signs of damage?_____	❒	❒
– Are fueling cans used with this equipment approved type safety cans?_____	❒	❒

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

Portable Power Tools:

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

Cleanliness:

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

Operator Qualifications (as applicable for all heavy equipment):

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

Identification:

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

Additional Inspection Required Prior to Use On-Site

	Yes	No
– Does equipment emit noise levels above 90 decibels?	❒	❒
– If so, has an 8-hour noise dosimetry test been performed?	❒	❒

- Results of noise dosimetry:_____
- Defects and repairs needed:_____
- General Safety Condition: _____
- Operator or mechanic signature:_____

Approved for Use: ❒ Yes ❒ No

_____
Site Safety Officer Signature

ATTACHMENT IV

SAFE WORK PERMITS

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

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

SECTION I: General Job Scope

I. Work limited to the following (description, area, equipment used): Mobilization and demobilization activities activities.

II. Required Monitoring Instruments: None

III. Field Crew: _____

IV. On-site Inspection conducted ☐ Yes ☐ No Initials of Inspector _____ _____ TtNUS

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

IV. Protective equipment required

Level D ☒ Level B ☐
Level C ☐ Level A ☐
Detailed on Reverse

Respiratory equipment required

Full face APR	☐	Escape Pack	☐
Half face APR	☐	SCBA	☐
SKA-PAC SAR	☐	Bottle Trailer	☐
Skid Rig	☐	None	☒

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

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

None anticipated given the nature of surveying activities and limited contact w/ media.

VI. Additional Safety Equipment/Procedures

Hard-hat	☐ Yes	☐ No	Hearing Protection (Plugs/Muffs)	☐ Yes	☐ No
Safety Glasses	☒ Yes	☐ No	Safety belt/harness	☐ Yes	☒ No
Chemical/splash goggles	☐ Yes	☒ No	Radio	☐ Yes	☒ No
Splash Shield	☐ Yes	☒ No	Barricades	☐ Yes	☒ No
Splash suits/coveralls	☐ Yes	☒ No	Gloves (Type - Nitrile)	☐ Yes	☒ No
Steel toe Work shoes or boots	☒ Yes	☐ No	Work/rest regimen	☐ Yes	☒ No

Modifications/Exceptions: Tyvek coverall to protect against natrual hazards (e.g., ticks). If working in areas where snakes are a threat, wear snake chaps to protect against bites.

VII. Procedure review with permit acceptors

	Yes	NA		Yes	NA
Safety shower/eyewash (Location & Use)	☐	☒	Emergency alarms	☒	☐
Procedure for safe job completion	☐	☒	Evacuation routes	☒	☐
Contractor tools/equipment/PPE inspected	☐	☒	Assembly points	☒	☐

VIII. Equipment Preparation

	Yes	NA
Equipment drained/depressurized	☐	☒
Equipment purged/cleaned	☐	☒
Isolation checklist completed	☐	☒
Electrical lockout required/field switch tested	☐	☒
Blinds/misalignments/blocks & bleeds in place	☐	☒
Hazardous materials on walls/behind liners considered	☐	☒

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

X. Special instructions, precautions: Preview work locations to identify potential hazards (slips, trips, and falls, natural hazards, etc.) Avoid potential nesting areas. Wear light colored clothing so that ticks and other biting insects can be easily visible and can be removed. Inspect clothing and body for ticks. Minimize contact with potentially contaminated media. Suspend site activities in the event of inclement weather.

Permit Issued by: _____ Permit Accepted by: _____

SAFE WORK PERMIT
DECONTAMINATION ACTIVITIES
NAVAL STATION, MAYPORT, FLORIDA

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

SECTION I: General Job Scope

I. Work limited to the following (description, area, equipment used): Decontamination of sampling equipment and machinery (i.e., drill rigs, augers). Brushes and spray bottles will be used to decon small sampling equipment. Pressure washers or steam cleaning units will be used to decon the augers and drilling.

II. Required Monitoring Instrument(s): PID with 9.24 eV (or higher) lamp source (used to screen equipment)

III. Field Crew: _____

IV. On-site Inspection conducted ☐ Yes ☐ No Initials of Inspector _____ _____
TtNUS

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

IV. Protective equipment required

Level D ☒ Level B ☐
Level C ☐ Level A ☐
Detailed on Reverse

Respiratory equipment required

Full face APR	☐	Escape Pack	☐
Half face APR	☐	SCBA	☐
SKA-PAC SAR	☐	Bottle Trailer	☐
Skid Rig	☐	None	☒

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

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

Chemicals of Concern	Action Level(s)	Response Measures
Potential site contaminant is Diesel Fuel	Elevated readings are not anticipated to be encountered	If airborne readings are observed, report to an unaffected area

VI. Additional Safety Equipment/Procedures

Hard-hat	☒ Yes	☐ No	Hearing Protection (Plugs/Muffs)	☒ Yes	☐ No
Safety Glasses	☒ Yes	☐ No	Safety belt/harness	☐ Yes	☒ No
Chemical/splash goggles	☐ Yes	☒ No	Radio	☐ Yes	☒ No
Splash Shield	☒ Yes	☐ No	Barricades	☐ Yes	☒ No
Splash suits/coveralls	☒ Yes	☐ No	Gloves (Type - Nitrile)	☒ Yes	☐ No
Steel toe Work shoes or boots	☒Yes	☐ No	Work/rest regimen	☐ Yes	☒ No

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

VII. Procedure review with permit acceptors

	Yes	NA		Yes	NA
Safety shower/eyewash (Location & Use)	☒	☐	Emergency alarms	☒	☐
Procedure for safe job completion	☐	☒	Evacuation routes	☒	☐
Contractor tools/equipment/PPE inspected	☐	☒	Assembly points	☒	☐

VIII. Equipment Preparation

	Yes	NA
Equipment drained/depressurized	☐	☒
Equipment purged/cleaned	☐	☒
Isolation checklist completed	☐	☒
Electrical lockout required/field switch tested	☐	☒
Blinds/misalignments/blocks & bleeds in place	☐	☒
Hazardous materials on walls/behind liners considered	☐	☒

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

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

Permit Issued by: _____ Permit Accepted by: _____

SAFE WORK PERMIT
MULTI-MEDIA SAMPLING
NAVAL STATION, MAYPORT, FLORIDA

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

SECTION I: General Job Scope

I. Work limited to the following (description, area, equipment used): Multi media sampling including soils (surface and sub surface); sediments; groundwater and IDW.

II. Required Monitoring Instrument(s): PID with 9.24 eV (or higher) lamp source

III. Field Crew: _____

IV. On-site Inspection conducted ☐ Yes ☐ No Initials of Inspector _____ _____
TtNUS

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

IV. Protective equipment required

Level D ☒ Level B ☐
Level C ☐ Level A ☐
Detailed on Reverse

Respiratory equipment required

Full face APR	☐	Escape Pack	☐
Half face APR	☐	SCBA	☐
SKA-PAC SAR	☐	Bottle Trailer	☐
Skid Rig	☐	None	☒

Modifications/Exceptions: Minimum requirement include sleeved shirt and long pants, safety footwear, safety glasses and nitrile gloves. Hard hats and hearing protection will be worn when working near operating equipment and or when required by the facility.

V.

Chemicals of Concern	Action Level(s)	Response Measures
Site contaminant is diesel fuel.	Any sustained readings above 50 ppm in worker breathing zones.	Suspend site activities and report to an unaffected area.

VI. Additional Safety Equipment/Procedures

Hard-hat	☐ Yes	☐ No	Hearing Protection (Plugs/Muffs)	☐ Yes	☐ No
Safety Glasses	☒ Yes	☐ No	Safety belt/harness	☐ Yes	☒ No
Chemical/splash goggles	☐ Yes	☒ No	Radio	☐ Yes	☒ No
Splash Shield	☐ Yes	☒ No	Barricades	☐ Yes	☒ No
Splash suits/coveralls	☐ Yes	☐ No	Gloves (Type - Nitrile)	☒ Yes	☐ No
Steel toe Work shoes or boots	☒ Yes	☐ No	Work/rest regimen	☐ Yes	☒ No

Modifications/Exceptions: Tyvek coverall if there is a potential for soiling work cloths and PVC or PE coated Tyvek if saturation or work cloths may occur.

VII. Procedure review with permit acceptors

	Yes	NA		Yes	NA
Safety shower/eyewash (Location & Use)	☒	☐	Emergency alarms	☒	☐
Procedure for safe job completion	☐	☒	Evacuation routes	☒	☐
Contractor tools/equipment/PPE inspected	☐	☒	Assembly points	☒	☐

VIII. Equipment Preparation

	Yes	NA
Equipment drained/depressurized	☐	☒
Equipment purged/cleaned	☐	☒
Isolation checklist completed	☐	☒
Electrical lockout required/field switch tested	☐	☒
Blinds/misalignments/blocks & bleeds in place	☐	☒
Hazardous materials on walls/behind liners considered	☐	☒

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

X. Special instructions, precautions: _____

Permit Issued by: _____ Permit Accepted by: _____

SAFE WORK PERMIT
SOIL BORING AND SUBSURFACE SOIL SAMPLING OPRATIONS
NAVAL STATION, MAYPORT, FLORIDA

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

SECTION I: General Job Scope

I. Work limited to the following (description, area, equipment used): Subsurface soil sample collected via hollow stem auger, and direct push technology. Monitoring Well installation, purging and development.

II. Required Monitoring Instruments: PID with 9.24 eV (or higher) lamp source

III. Field Crew: _____

IV. On-site Inspection conducted ☐ Yes ☐ No Initials of Inspector _____ _____ TtNUS

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

IV. Protective equipment required
Level D ☒ Level B ☐
Level C ☐ Level A ☐
Detailed on Reverse

Respiratory equipment required

Full face APR	☐	Escape Pack	☐
Half face APR	☐	SCBA	☐
SKA-PAC SAR	☐	Bottle Trailer	☐
Skid Rig	☐	None	☒

Modifications/Exceptions: Minimum requirement include sleeved shirt and long pants, safety footwear, and nitrile gloves. Safety glasses, hard hats, and hearing protection will be worn when working near or sampling in the vicinity of the drill rig or other operating equipment.

V.

Chemicals of Concern	Action Level(s)	Response Measures
Potential site contaminant is Diesel Fuel	Any sustained readings above 50 ppm background in worker breathing zones.	Suspend site activities and levels report to an unaffected area.

VI. Additional Safety Equipment/Procedures

Hard-hat	☒ Yes	☐ No	Hearing Protection (Plugs/Muffs)	☒ Yes	☐ No
Safety Glasses	☒ Yes	☐ No	Safety belt/harness	☐ Yes	☒ No
Chemical/splash goggles	☐ Yes	☒ No	Radio	☐ Yes	☒ No
Splash Shield	☐ Yes	☒ No	Barricades	☐ Yes	☒ No
Splash suits/coveralls	☐ Yes	☒ No	Gloves (Type - Nitrile)	☒ Yes	☐ No
Steel toe Work shoes or boots	☒ Yes	☐ No	Work/rest regimen	☐ Yes	☒ No

Modifications/Exceptions: Tyvek coverall if there is a potential for soiling work cloths. PVC or PE coated Tyvek if saturation or work cloths may occur.

VII. Procedure review with permit acceptors

	Yes	NA		Yes	NA
Safety shower/eyewash (Location & Use)	☐	☐	Emergency alarms	☒	☐
Procedure for safe job completion	☒	☐	Evacuation routes	☒	☐
Contractor tools/equipment/PPE inspected	☒	☐	Assembly points	☒	☐

VIII. Equipment Preparation

	Yes	NA
Equipment drained/depressurized	☐	☒
Equipment purged/cleaned	☐	☒
Isolation checklist completed	☐	☒
Electrical lockout required/field switch tested	☐	☒
Blinds/misalignments/blocks & bleeds in place	☐	☒
Hazardous materials on walls/behind liners considered	☐	☒

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

X. Special instructions, precautions: The TtNUS SOP on Utility Location and Excavation Clearance will be followed for all subsurface activities.

Permit Issued by: _____ Permit Accepted by: _____

SAFE WORK PERMIT
SURVEYING ACTIVITIES
NAVAL STATION, MAYPORT, FLORIDA

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

SECTION I: General Job Scope

I. Work limited to the following (description, area, equipment used): Geographical surveys

II. Required Monitoring Instruments: None

III. Field Crew: _____

IV. On-site Inspection conducted ☐ Yes ☐ No Initials of Inspector _____ _____
TtNUS

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

V. Protective equipment required
Level D ☒ Level B ☐
Level C ☐ Level A ☐
Detailed on Reverse

Respiratory equipment required

Full face APR	☐	Escape Pack	☐
Half face APR	☐	SCBA	☐
SKA-PAC SAR	☐	Bottle Trailer	☐
Skid Rig	☐	None	☒

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

VI.

Chemicals of Concern	Action Level(s)	Response Measures
None anticipated given the nature of surveying activities and limited contact w/ media.	None	

VII. Additional Safety Equipment/Procedures

Hard-hat	☐ Yes ☐ No		Hearing Protection (Plugs/Muffs)	☐ Yes	☒ No
Safety Glasses	☐ Yes ☐ No		Safety belt/harness	☐ Yes	☒ No
Chemical/splash goggles	☐ Yes	☒ No	Radio	☐ Yes	☒ No
Splash Shield	☐ Yes	☒ No	Barricades	☐ Yes	☒ No
Splash suits/coveralls	☐ Yes ☐ No		Gloves (Type - Work)	☐ Yes	☐ No
Steel toe Work shoes or boots	☐Yes ☐ No		Work/rest regimen	☐ Yes	☒ No

Modifications/Exceptions: Tyvek coverall to protect against natural hazards (e.g., ticks). If working in areas where snakes are a threat, wear snake chaps to protect against bites. In high traffic areas wear high visibility vests.

VIII. Procedure review with permit acceptors

	Yes	NA		Yes	NA
Safety shower/eyewash (Location & Use)	☐	☒	Emergency alarms	☒	☐
Procedure for safe job completion	☐	☒	Evacuation routes	☒	☐
Contractor tools/equipment/PPE inspected	☐	☒	Assembly points	☒	☐

IX. Equipment Preparation

	Yes	NA
Equipment drained/depressurized	☐	☒
Equipment purged/cleaned	☐	☒
Isolation checklist completed	☐	☒
Electrical lockout required/field switch tested	☐	☒
Blinds/misalignments/blocks & bleeds in place	☐	☒
Hazardous materials on walls/behind liners considered	☐	☒

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

XI. Special instructions, precautions: Preview work locations to identify potential hazards (slips, trips, and falls, natural hazards, etc.) Avoid potential nesting areas. Wear light colored clothing so that ticks and other biting insects can be easily visible and can be removed. Inspect clothing and body for ticks. Minimize contact with potentially contaminated media. Suspend site activities in the event of inclement weather.

Permit Issued by: _____ Permit Accepted by: _____

SAFE WORK PERMIT FOR
IDW HANDLING, SAMPLING, AND STAGING OF DRUMS
NAVAL STATION, MAYPORT, FLORIDA

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

SECTION I: General Job Scope

I. Work limited to the following (description, area, equipment used): Handling, sampling, and staging of IDW drums.

II. Required Monitoring Instruments: PID with 9.24 eV (or higher) lamp to detect presence of VOCs

III. Field Crew: _____

IV. On-site Inspection conducted ☒ Yes ☐ No Initials of Inspector _____ _____
TtNUS

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

IV. Protective equipment required

Level D ☐ Level B ☒
Level C ☐ Level A ☐
Detailed on Reverse

Respiratory equipment required

Full face APR	☐	Escape Pack	☐
Half face APR	☐	Airline/SCBA	☒
SKA-PAC SAR	☐	Bottle trailer	☐
Skid Rig	☐	None	☐

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

V.

Chemicals of Concern	Action Level(s)	Response Measures
Potential contaminant is Diesel Fuel	Any sustained readings above 50 ppm in worker breathing zones.	Suspend site activities and report to an unaffected area.

VI. Additional Safety Equipment/Procedures

Hard-hat	☒ Yes	☐ No	Hearing Protection (Plugs/Muffs)	☐ Yes	☒ No
Safety Glasses	☐ Yes	☐ No	Safety belt/harness	☐ Yes	☒ No
Chemical/splash goggles	☐ Yes	☐ No	Radio	☐ Yes	☒ No
Splash Shield	☐ Yes	☐ No	Barricades	☐ Yes	☒ No
Splash suits/coveralls	☒ Yes	☐ No	Gloves (Type - Nitrile\Work)	☒ Yes	☐ No
Steel toe Work shoes or boots	☒ Yes	☐ No	Work/rest regimen	☐ Yes	☒ No

Modifications/Exceptions: Tyvek coverall if there is a potiential for soiling clothes. Work/rest regimen to be determined by SSO.

VII. Procedure review with permit acceptors

	Yes	NA		Yes	NA
Safety shower/eyewash (Location & Use)	☐	☐	Emergency alarms	☒	☐
Procedure for safe job completion	☐	☐	Evacuation routes	☒	☐
Contractor tools/equipment/PPE inspected	☐	☒	Assembly points	☒	☐

VIII. Equipment Preparation

	Yes	NA
Equipment drained/depressurized	☐	☒
Equipment purged/cleaned	☐	☒
Isolation checklist completed	☐	☒
Electrical lockout required/field switch tested	☐	☒
Blinds/misalignments/blocks & bleeds in place	☐	☒
Hazardous materials on walls/behind liners considered	☐	☒

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

X. Special instructions, precautions: _____

Permit Issued by: _____ Permit Accepted by: _____