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HEALTH AND SAFETY PLAN FOR BASEWIDE BACKGROUND SOIL SAMPLING NS  
MAYPORT FL  
11/1/2007  
TETRA TECH NUS

# Comprehensive Long-term Environmental Action Navy

CONTRACT NUMBER N62467-04-D-0055



## Health And Safety Plan For Base Wide Background Soil Sampling

Naval Station Mayport  
Mayport, Florida

Contract Task Order 0033

November 2007



Southeast

2155 Eagle Drive

North Charleston, South Carolina 29406

**HEALTH AND SAFETY PLAN  
FOR  
BASE WIDE BACKGROUND SOIL SAMPLING**

**NAVAL STATION MAYPORT  
MAYPORT, FLORIDA**

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

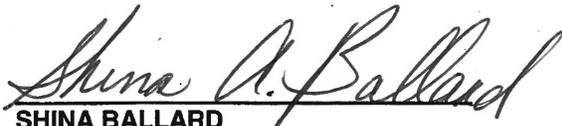
**Submitted to:  
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Naval Facilities Engineering Command  
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**CONTRACT NUMBER N62467-04-D-0055  
CONTRACT TASK ORDER 0033**

**NOVEMBER 2007**

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## ACRONYMS

CFR	Code of Federal Regulations
CLEAN	Comprehensive Long-term Environmental Action Navy
CNS	Central Nervous System
CPR	Cardio-Pulmonary Resuscitation
CTO	Contract Task Order
dBA	Decibel
DPT	Direct Push Technology
FOD	Foreign Object and Debris
FOL	Field Operations Leader
GPS	Global Positioning System
HASP	Health and Safety Plan
HIPAA	Health Insurance Portability and Accountability Act
HSGM	Health and Safety Guidance Manual
HSM	Health and Safety Manager
IDW	Investigation Derived Waste
LAMPS	Light Airborne Multi-purpose System
MK III	Mark III
MSDS	Material Safety Data Sheet
NAVSTA	Naval Station
OSHA	Occupational Safety and Health Administration
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PHI	Protected Health Information
PHSO	Project Health and Safety Officer
PPE	Personal Protective Equipment
SOP	Standard Operating Procedure
SSHO	Site Safety and Health Officer
TBD	To Be Determined
TOM	Task Order Manager
TtNUS	Tetra Tech NUS, Inc.
VOC	Volatile Organic Compound
WNV	West Nile Virus

## 1.0 INTRODUCTION

The objective of this Site Specific Health and Safety Plan (HASP) is to provide the minimum safe work practices and procedures to Tetra Tech NUS, Inc. (TtNUS) subcontractor personnel while engaged in site investigation activities (as described in Section 1.3) at Naval Station (NAVSTA) Mayport, located in Mayport, Florida.

**Authorization:** This HASP and the work described within are completed under the authorization of:

Contract: Comprehensive Long-Term Environmental Action Navy (CLEAN) IV  
Contract Number: N62467-04-D-0055  
Contract Task Order (CTO): CTO 0033  
Statement of Work: see Section 1.3

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

- Occupational Safety and Health Administration (OSHA) 29 Code of Federal Regulations (CFR) 1910.120, "Hazardous Waste Operations and Emergency Response"
- Applicable sections of 29 CFR 1926 "Safety and Health Regulations For Construction"
- TtNUS Health and Safety Program

**Modifications/Changes:** The following conditions are considered sufficient basis for change and will initiate review and possible change to this document:

- The addition of activities outside of those specified in Section 1.3, Scope of Work.
- Task Modifications to those activities specified within Section 1.3, Scope of Work.
- New information that becomes available through the course of the investigation or from outside sources.

This HASP must be accompanied by the TtNUS Health and Safety Guidance Manual (HSGM). The HSGM provides additional information in the areas of program support, standard operating procedures (SOPs), and safe work practices.

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

## 1.1 KEY PROJECT PERSONNEL AND ORGANIZATION

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

- The TtNUS TOM is responsible for the overall direction of health and safety for this project.
- The Project Health and Safety Officer (PHSO) is responsible for developing this HASP in accordance with applicable OSHA regulations.
- The TtNUS Field Operations Leader (FOL) is responsible for implementation of the HASP with the assistance of an appointed Site Safety and Health Officer (SSHO).
- The FOL manages field activities, executes the work plan, and enforces safety procedures as applicable to the work plan.
- The SSHO supports site activities by assisting the FOL on the aspects of health and safety on-site.
- Compliance with the requirements of this HASP is monitored by the SSHO and coordinated through the TtNUS CLEAN HSM.

Persons assigned to these positions are as follows:

NAME/POSITION	CONTACT INFORMATION
Ms. Shina Ballard TtNUS Task Order Manager (TOM)	Direct: (904) 730-4669 ext. 222 Fax: (904) 636-6165 <a href="mailto:Shina.Ballard@tetrattech.com">Shina.Ballard@tetrattech.com</a>
To be determined (TBD) Field Operations Leader (FOL)	
TBD Site Safety and Health Officer (SSHO)	
Tom Dickson, CSP Project Health and Safety Officer (PHSO)	(412) 921-8457 <a href="mailto:Tom.Dickson@tetrattech.com">Tom.Dickson@tetrattech.com</a>
Matthew Soltis CIH, CSP TtNUS Health and Safety Manager (HSM)	(412) 921-8912 <a href="mailto:Matt.Soltis@tetrattech.com">Matt.Soltis@tetrattech.com</a>

Hazard assessments (for purposes of 29 CFR 1910.132) and HASP preparation have been conducted by Tom Dickson, CSP.

All facility activities to be conducted at NAVSTA Mayport will be coordinated through the Facility Contact, Ms. Diane Racine.

NAME/POSITION	CONTACT INFORMATION
Ms. Adrienne Wilson United States Navy, Engineer In Charge, Remedial Project Manager	(843) 820-5582
Ms. Diane Racine NAVSTA Mayport Facility Contact	(904) 270-6730 ext. 208

## 1.2 SITE INFORMATION AND PERSONNEL ASSIGNMENTS

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.

Since its commissioning in December 1942, NAVSTA Mayport has grown to become the third largest fleet concentration area in the United States. NAVSTA Mayport's operational composition is unique, with a busy harbor capable of accommodating 34 ships and an 8,000-foot runway capable of handling any aircraft in the Department of Defense inventory.

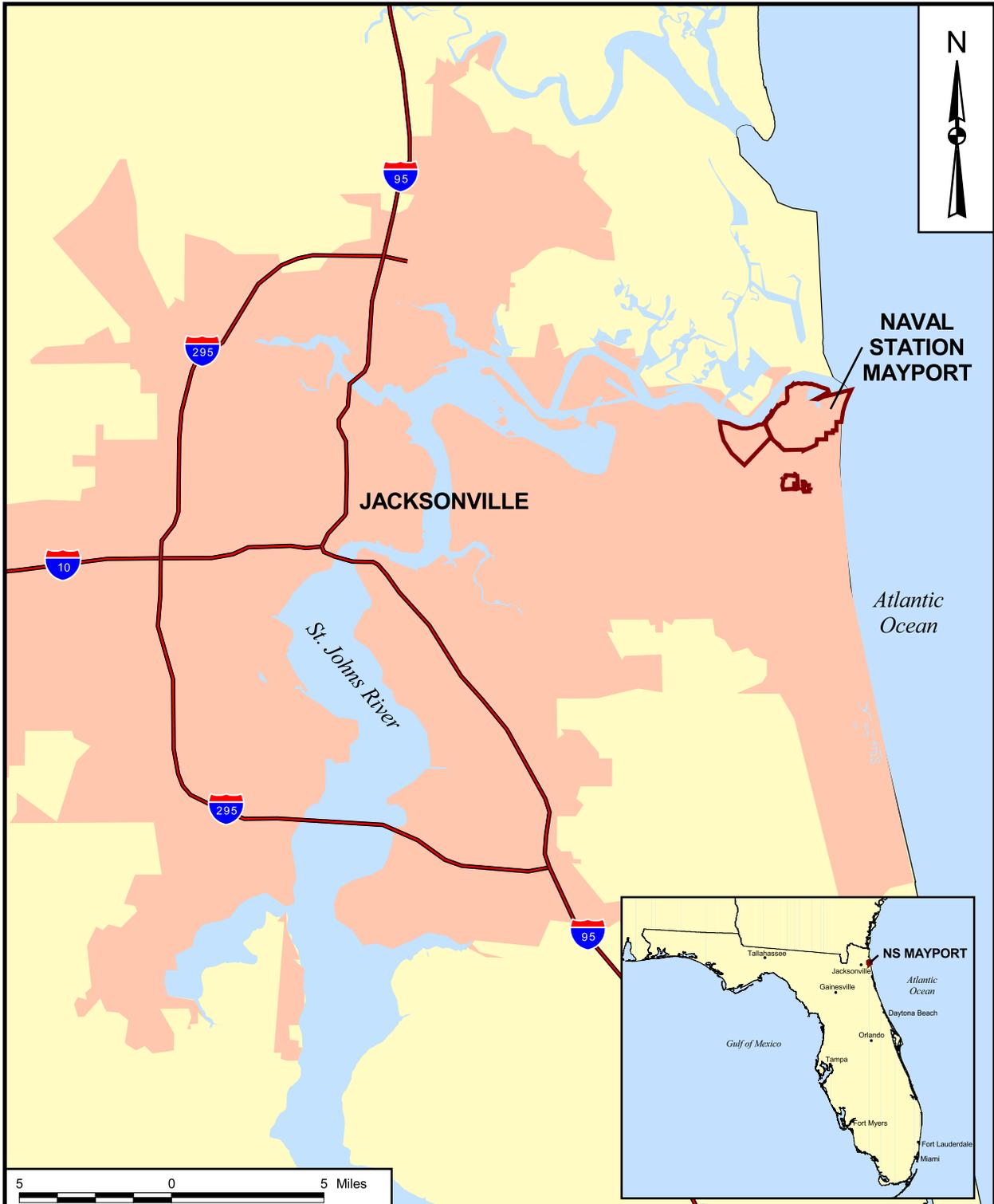
With more than 3,400 acres, NAVSTA Mayport is host to more than 55 tenant commands including 23 naval ships and six Light Airborne Multi-purpose System (LAMPS) Mark III (MK III) helicopter squadrons. NAVSTA Mayport is also the operational and training headquarters for the SH-60B Seahawk LAMPS MK III with a primary mission of anti-submarine warfare.

See Figure 1-1 for aerial depiction of NAVSTA Mayport.

## 1.3 SCOPE OF WORK

The objective is to determine what the concentrations of naturally occurring arsenic are, base wide. Samples will be collected in areas determined not to be impacted by past operations. Additional activities include the following:

- Mobilization/demobilization
- Geographical surveying (pinpoint locations prior to sampling)



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CHECKED BY L. ROBERTSON	DATE 7/14/06
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**SITE LOCATION MAP**  
**NAVAL STATION MAYPORT**  
**MAYPORT, FLORIDA**

CONTRACT NUMBER 0033	
APPROVED BY	DATE
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P:\GIS\MAYPORT\_NS\MAPDOCS\APR\RSWMU47\_53\_55.APR SITE LOCATION LAYOUT 7/14/06 AJ

- Soil sampling (see Figure 1-2 for locations)
  - Direct push technology (DPT) MacroCore sampling
  - Hand augers
- Decontamination
- Investigation derived waste (IDW) management

### **Safe Work Packets**

The activities to be conducted have been segregated into task specific Safe Work Packets within this plan. The elements of the Safe Work Packets will be presented to the field crew prior to conducting the activity. This presentation may be conducted all at once (Site Specific Training) or through individual tailgate sessions as the work is to be completed. The Safe Work Packet addresses the following:

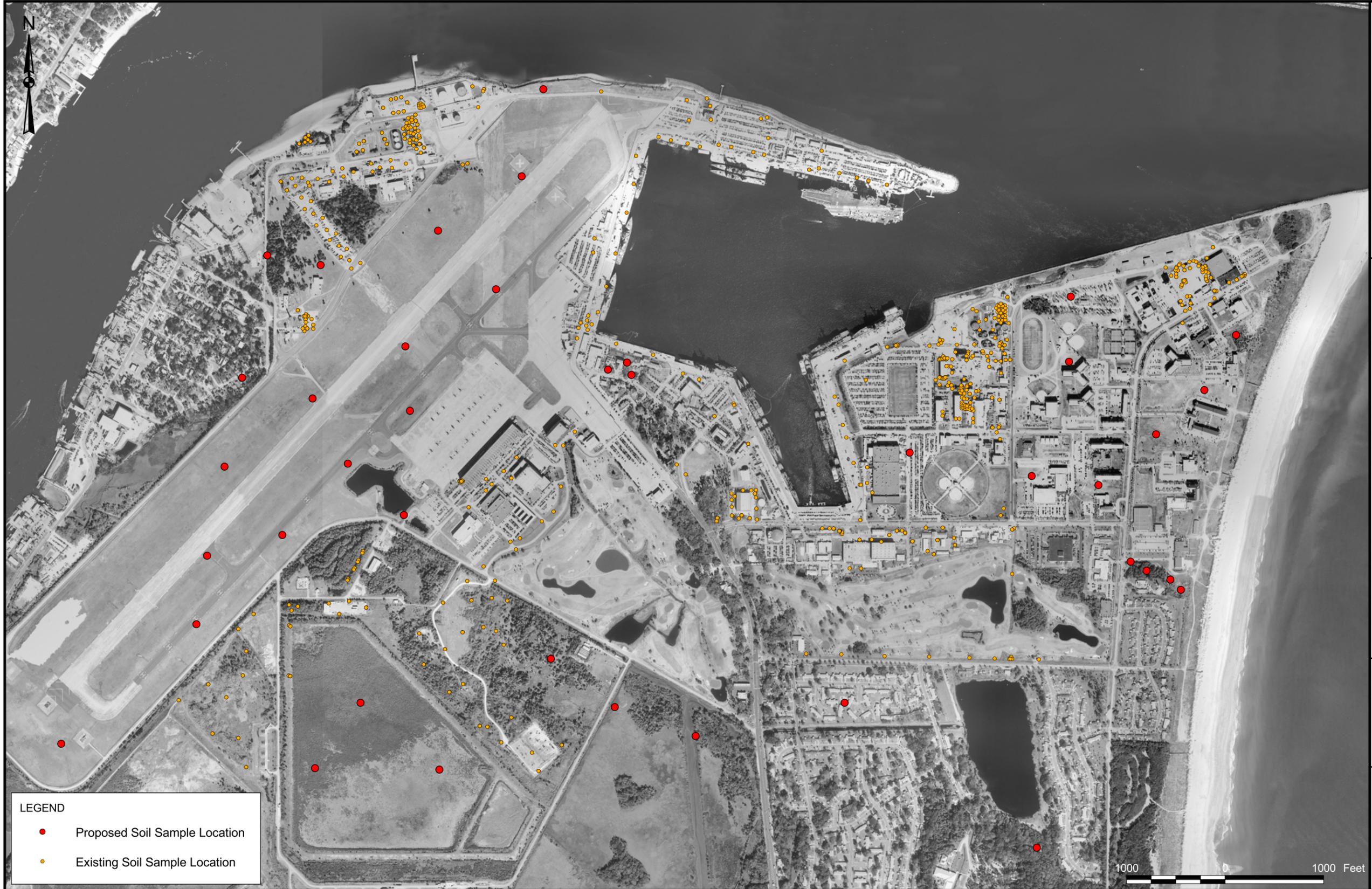
- Task(s) description
- Hazard analysis and control measures
- Hazard monitoring direction
- Task specific elements/requirements such as training, personal protective equipment (PPE), decontamination, and supporting program or permit requirements.

All field personnel will complete the following sections of this HASP regardless of tasks in which they will conduct or participate.

- Mobilization/demobilization safe work packet (applicable sections as determined by the SSHO)
- Safe work packet describing the tasks to be performed
- Section 7.0, Emergency Action Plan

This information has been provided in Safe Work Packets to permit the applicable sections to be extracted and supplied to the field crew during the execution of each task and also reviewed during Tailgate Safety Meeting sessions. The Safe Work Packets shall be reviewed by the FOL with the field crew accomplishing the task initially, then as necessary based on changes of contaminants, site locations, or as new information becomes available.

The FOL/SSHO is required to complete the documentation within each packet. The first page of each packet has a checklist that will be checked off when completed.



**LEGEND**

- Proposed Soil Sample Location
- Existing Soil Sample Location

		<p style="text-align: center;"><b>ALL SOIL SAMPLES WITH 40 PROPOSED SAMPLE LOCATIONS NAVSTA MAYPORT MAYPORT, FLORIDA</b></p>		<p>CONTRACT NO. CTO 0033</p>	
<p>DRAWN BY A. JANCOCHA</p>	<p>DATE 4/06/07</p>	<p>APPROVED BY</p>	<p>DATE</p>	<p>APPROVED BY</p>	<p>DATE</p>
<p>CHECKED BY D. HARDISON</p>	<p>DATE 9/03/07</p>	<p>DRAWING NO.</p>	<p>Figure 1-2</p>	<p>REV</p>	<p>0</p>
<p>SCALE AS NOTED</p>					

## **1.4 CONTAMINANTS OF CONCERN**

Sample locations have been selected within areas thought not to have been impacted by previous operations. Therefore, overexposure to arsenic or any other contaminants is not anticipated. However, as this is a base wide survey some general guidelines have been included for general contaminants of concern.

### **1.4.1 Metals**

Specific toxicities and, hence, symptoms vary to somewhat extent between individual metal compounds and associated isomers. However, general toxicities exist that can be applied to all metals. For instance, all metals encountered are considered kidney toxins. Other generalized effects have shown demonstrated impacts on the peripheral and central nervous systems, blood forming mechanisms, gastrointestinal disturbances, cardio and vascular toxicities and some are cancer causing agents. Generally, in a particulate form, metals will cause respiratory, dermal, and eye irritation. Acute symptoms from elevated concentration associated with ingestion include stomach pain, cramps, headaches, possibly diarrhea and vomiting. These conditions are typically symptomatic of chronic exposure or acute exposure to high concentrations which are not anticipated on the site.

Contaminants encountered include commingled in or bound with soil particulates. It will not be known if metals are present based on appearance, smell, or any other physical senses.

The method of sampling creates a small footprint and, therefore, less surface exposure, again reducing potential opportunity for exposure. Ingestion possibilities still exist and are usually facilitated through contaminated hand or glove to mouth contact or to some media which eventually contacts the mouth. This exposure route can also be controlled and, thereby, minimize exposure potential. Actions include the use of gloves, good work hygiene practices, and the employment of a suitable decontamination procedure.

### **1.4.2 Polycyclic Aromatic Hydrocarbons**

Polycyclic Aromatic Hydrocarbons (PAHs) are substances that include anthracene, benzo[a]anthracene, benzo[a]pyrene, chrysene, and fluoranthene. Acute exposures may result in difficulty breathing, respiratory failure, and skin and eye burns. Chronic exposure may damage the liver, kidneys, lungs, and skin. Many of these substances are recognized for their cancer causing properties. Overexposure to PAHs has shown to be a skin, eye, and mucous membrane irritant. Some of these substances are considered to be photosensitizers and mild allergen and are considered mildly to moderately toxic by ingestion. The majority of these substances are petroleum based pitch, which is considered insoluble.

These substances will commingle with soils and sediments which minimizes mobility and exposure potential. Ingestion exposure routes still exist; however, this route can be controlled through use of PPE, good work hygiene practices, and diligent application of decontamination procedures.

#### **1.4.3 Polychlorinated Biphenyls/Pesticides (Insecticides/Herbicides)**

Polychlorinated biphenyls (PCBs) and pesticides exercise general toxicities on the Central Nervous System (CNS), liver, kidneys, and skin. The function of pesticides and herbicides are typically to disrupt operations on a molecular level through enzyme inhibition or binding. PCBs were employed as dielectric fluids to control heat within transformers and capacitors. Due to the bioaccumulative properties and persistence of these substances within the environment, many of these substances have been removed from use. Acute signs and symptoms include the following:

- Skin eruptions, chloroacne (yellow pustules similar to acne), associated with PCBs and some herbicides.
- CNS/Neuromuscular symptoms include headaches, fatigue, dizziness, muscle twitching, tremors, convulsions, weakness or numbness of the arms or legs, as well as, disturbed equilibrium.

These signs and symptoms are associated with acute (high levels) poisoning and are not anticipated within this environmental setting. PCBs have been implicated as a potential carcinogen.

#### **1.4.4 Volatile Organic Compounds/Chlorinated Solvents**

Volatile organic compounds (VOCs) and chlorinated solvents generally express symptoms including the following:

- Irritating at all points of contact. Chronic or elevated concentrations directly contacting the skin may result in dermatitis.
- Inhalation of high concentrations (not anticipated in an outdoor environment) can result in CNS effects including dizziness, blurred vision, overexcitement, narcotic effects, and unconsciousness. Systemic effects through inhalation can also result in altered (erratic) heart beat and possible cardiac arrest.

As with metals, PAHs, PCBs, pesticides the exposure mechanism and route of exposure can be readily controlled with PPE, diligent decontamination, and good work hygiene practices.

VOCs may be detected through odor or through the generation of a sheen on water, unlike PCBs, PAHs, and pesticides. Many VOCs bind to soil and sediment particulates. Ingestion is the primary concern and can be minimized if not eliminated by following good work hygiene practices.

## 2.0 EMERGENCY ACTION PLAN

### 2.1 ACTIVITY AND DOCUMENTATION CHECKLIST

The Safe Work Packet for the Mobilization/Demobilization Activity contains the following information:

- Table 2-1, Mobilization/Demobilization Activity Hazard Analysis.
- General Safe Work Practices – These are general safe work practices that are to be reviewed with the Activity Hazard Analysis for this task during the site briefing.
- Figure 2-1, TtNUS Health and Safety Policy (posted in a conspicuous location, accessible to all personnel).
- Figure 2-2, OSHA Poster to be placed in a conspicuous location or inform site personnel of the posters presence in the plan. This poster must be readily accessible to all persons.
- Figure 2-3, Site-Specific Training Documentation - Personnel who attend this training will print their name and sign the training documentation form attesting to the information provided.
- Figure 2-4, Tailgate/Safety Meeting Training Documentation.
- Figure 2-5, Medical Data Sheets.
- Figure 2-6, Equipment Inspection for Drill Rigs.
- Utility Locating and Excavation Clearance SOP (see Section 7.0 of the HSGM).

**TABLE 2-1 MOBILIZATION/DEMOBILIZATION ACTIVITY HAZARD ANALYSIS**

**ACTIVITY:** Mobilization/Demobilization

**ANALYZED BY/DATE:** Tom Dickson 10/2007

ACTIVITY / PHASE	POTENTIAL HAZARDS	RECOMMENDED ACTIONS / CONTROLS
<ul style="list-style-type: none"> <li>• Procurement and inspection of equipment</li> <li>• Preparation of equipment</li> <li>• Site control establishment</li> </ul>	<p>1) Lifting</p> <p>2) Cuts/Lacerations</p> <p>3) Slips/Trips/Falls</p> <p>4) Traffic Hazards</p>	<p><b>1) Lifting (strain/muscle pulls)</b>                      Where possible, use machinery or multiple personnel for heavy lifts, use proper lifting techniques (i.e., plan each lift, do a test lift, inspect paths of travel, lift with legs, obtain good hand holds, move close to the center of gravity). Additional safe lifting practices may be found in Section 4.4 of the HSGM.</p> <p>☞ <b>Remember:</b> Muscles are most vulnerable during the first 30-minutes of work (stretch before starting) and stretch before periods of extreme physical exertion. One becomes more vulnerable again later in the day as fatigue sets in. To combat potential injury, increase break frequencies as needed and get help where possible.</p> <p><b>2) Cuts/lacerations</b></p> <ul style="list-style-type: none"> <li>- Inspect all cutting equipment to be used for defects.</li> <li>- When cutting items, always use a sharp knife and always cut away from your body.</li> <li>- Do not place items to be cut in your opposite hand or on your knee.</li> <li>- Wear cut resistant gloves when hand-cutting or a glove at least on your non-knife hand.</li> </ul> <p>See Section 4.13 of the HSGM for additional safe work practices as it pertains to cuts/lacerations hazards.</p> <p>☞ <b>Remember:</b> Examine paths to work areas and work areas for debris, protruding items that could create a puncture hazard. Where possible remove these items, where not at least flag them so people traveling this routes see them. Lastly, when you reach into protective casing to remove the cap from wells care should be exercised because of sharp edges as well as potential nesting areas of spiders, bees, and other stinging and biting insects.</p> <p><b>3) Slips, trips, and falls</b></p> <ul style="list-style-type: none"> <li>- Remove/identify/demarcate trip hazards to and within the work area. If necessary, select a different route.</li> <li>- Maintain good housekeeping within work areas to minimize these types of hazards.</li> <li>- Steel toed work shoes should be equipped with an adequate lug to support traction over a number of terrain types.</li> </ul> <p><b>4) Vehicular and foot traffic</b> - Traffic and equipment considerations are to include the following:</p> <ul style="list-style-type: none"> <li>- The FOL and/or the SSHO as a precautionary measure are to remove/demarcate/ or otherwise mark physical hazards within the work area prior to the commitment of personnel and resources.</li> </ul>

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ACTIVITY / PHASE	POTENTIAL HAZARDS	RECOMMENDED ACTIONS / CONTROLS
		<ul style="list-style-type: none"> <li>- During set up, persons working along traffic patterns shall wear High Visibility Vests to increase visual recognition.</li> <li>- Observe all posted traffic signs.</li> </ul> <p>☝ <b>Remember:</b> Travel patterns are within industrial and potentially residential areas! Strict adherence is required to insure the safety of site personnel and residents living in the area. Violation of posted traffic rules and site rules will not be tolerated.</p> <ul style="list-style-type: none"> <li>- If activities planned will impede/encroach active roadways, insure there are the appropriate warning signs to indicate construction activities ahead and any traffic modifications. Any restriction of normal traffic flow should be coordinated with Base Security.</li> </ul> <p><b>Flight Line Activities/Ramp Training</b></p> <ul style="list-style-type: none"> <li>- Due to potential hazards associated working in these restricted areas personnel will attend Ramp Training, provide the necessary vehicle identification, and practice Foreign Object and Debris (FOD) control. See Section 2.7 for additional information concerning flight line activities.</li> </ul> <p><b>5) Inclement Weather</b> – To minimize hazards of this nature, the following provisions shall be employed:</p> <ul style="list-style-type: none"> <li>- Electrical storms/high winds - Suspend or terminate operations until directed otherwise by SSHO. Follow the 30/30 rule. See Section 2.6 for additional direction concerning inclement weather.</li> </ul> <p>Follow the provisions as specified in Section 4.0 of the TtNUS HSGM regarding the identification and evaluation of heat/cold stress related conditions.</p> <p><b>6) Natural Hazards</b> – While much of the areas are considered light industrial areas, there are unimproved areas, marshy areas, and creeks intersecting and surrounding NAVSTA Mayport where suggested sample locations have been selected. Potential natural hazards as well as recommended control measures are discussed in Section 2.2 of this safe work packet. Additional discussion is provided in Section 4.0 of the HSGM.</p> <p>☝ <b>Remember:</b> If you are allergic to any of these insects report it to the SSHO on your medical data sheet. Insure that you carry with you the doctor recommended antidote. If it is necessary to administer an injection, such as using an EpiPen, instruct members of your field crew as to its use should you become incapacitated.</p>

ACTIVITY / PHASE	POTENTIAL HAZARDS	RECOMMENDED ACTIONS / CONTROLS	
<p><b>Hazard Monitoring Required:</b> None Required – Visual observation of work practices by the FOL and/or the SSHO will be conducted to identify improper practices (lifting, cutting) that may lead to potential physical injuries.</p> <p>☝ <b>Remember:</b> Remember the general rule of thumb regarding noise:</p> <p><i>If you have to raise your voice to speak with someone within arms length, then you are approaching noise levels of 85 decibels (dBA) and should wear hearing protection during this activity.</i></p>	<p><b>Decontamination Procedures:</b> Not required. Good personal hygiene practices should be employed prior to breaks lunch or other period when hand to mouth contact occurs. This will minimize potential ingestion exposures.</p> <p>When exiting unimproved areas, always examine your clothing and your buddies for crawling insects such as ticks.</p>	<p><b>Permits/Requirements:</b> - None Required</p> <p>Note: If it is necessary to stage vehicles along taxiways, runways, or roadways, it is critical to obtain permission in advance. It may be necessary to coordinate this activity during a non-active period.</p> <p>In addition, if these vehicles must be staged in this location, make sure you provide an area between the staged vehicles and the oncoming traffic as a free travel space.</p>	
<p><b>PPE Requirements</b> Hazards associated with this activity are physical in nature such as lifting, site preparation, and construction of barricades around control zones. Each task shall be evaluated by the SSHO to determine the need for additional PPE. For example to minimize the potential effects of these hazards (i.e., hammering sample point hubs into the ground – flying projectiles – safety glasses will be selected, operation of power tools safety glasses and hearing protection will be employed), hard hats will be employed when for overhead hazards exist. Remember the general rule of thumb regarding excessive noise levels. This may be the case near multiple active runways. Selection of additional items will be based on site-specific conditions. Reflective vests for high traffic areas.</p> <p>⚠<b>Remember:</b> These are active runways, secure personal items and work related items that could blow away or be sucked into a jet engine. Account for all materials taken into restricted areas. See Section 2.7 concerning FOD.</p> <p>Caution should be exercised when working outdoors due to the harmful effects of the sun. Precautions should include wearing hat that shades the face neck and ears; liberal use of sunscreen; wrap around sunglasses; where possible.</p>			

ACTIVITY / PHASE	POTENTIAL HAZARDS	RECOMMENDED ACTIONS / CONTROLS	
<p><b>Training Required</b></p> <ul style="list-style-type: none"> <li>- 29 CFR 1910.120 (e) Site Specific Training (see Section 2.0 of the HSGM, Attachment 2-2).</li> <li>- Ramp Training (provided by the facility)</li> <li>- Safe Work Packet Review/Tailgate Meeting Attendance</li> </ul> <p><b>Medical Clearance/Surveillance Required</b></p> <ul style="list-style-type: none"> <li>- Medical Clearance approval</li> </ul> <p>Completed a Medical Data Sheet (Provide in this Safe Work Packet or See Section 3, Figure 3-6 of the HSGM for Blank forms)</p>		<p><b>Emergency Equipment</b></p> <ul style="list-style-type: none"> <li>- First Aid Kit</li> <li>- Fire Extinguisher</li> <li>- Map to Hospital and Emergency Contact List (Preferably placed in the First-Aid Kit), see also Emergency Reference, Table 7-1).</li> </ul> <p>☞ <b>Remember:</b> Anytime fuels, oils, and/or associated petroleum products are dispensed, provisions for spill containment should be maintained at the dispensing site. This includes the use of spill pads under the dispensing location to capture incidental spills.</p>	<p><b>Health and Safety Supporting Program Requirements</b></p> <ul style="list-style-type: none"> <li>• Hearing Conservation Program (see Section 6.0 of the HSGM) if hearing protection is employed.</li> </ul>

FIGURE 2-1, TtNUS HEALTH AND SAFETY POLICY

## TETRA TECH NUS, INC. HEALTH AND SAFETY POLICY

Tetra Tech NUS, Inc., is committed to providing our employees with a safe and healthful workplace. We believe that occupational injuries and illness can be prevented; and we are convinced that a strong Health and Safety Program is essential to achieve this objective.

The principal elements of our program are founded on the requirements that our managers and employees:

- Recognize a *personal responsibility* for their own health and safety and for actions that affect the health and safety of fellow employees.
- Integrate safety and health into *all aspects* of their work, with the well-being of employees as the primary concern in all activities.
- Comply with applicable *federal, state, and local regulations*, as well as with our internal Corporate and our clients' safety and health policies and procedures.
- Take an *active role* in the Health and Safety Program by providing input and constructive criticism for improvements to the program.

  
Ronald J. Chu, PE  
President

  
Matthew M. Soltis, CIH, CSP  
Health and Safety Manager

 Tetra Tech NUS, Inc.  
July 2007

# Job Safety and Health

## It's the law!



**EMPLOYEES:**

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

**EMPLOYERS:**

- You must furnish your employees a place of employment free from recognized hazards.
- You must comply with the occupational safety and health standards issued under the *OSH Act*.

**This free poster available from OSHA –  
The Best Resource for Safety and Health**



Revision 0  
April 2006

Free assistance in identifying and correcting hazards or complying with standards is available to employers, without citation or penalty, through OSHA-supported consultation programs in each state.

**1-800-321-OSHA**  
[www.osha.gov](http://www.osha.gov)

OSHA 3165-12-06R



**FIGURE 2-4, TAILGATE/SAFETY MEETING ATTENDANCE FORM**

*This form will be used to document Tailgate and/or Safety Meetings. It is the responsibility of the FOL and/or the SSHO to complete this form if the applicable information is not recorded in the Field Logbook.*

Project: NAVSTA Mayport, Mayport, Florida Base Wide Soil Assessment

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

Date: \_\_\_\_\_ Project Number: 112G00436

Project/TOM: Shina Ballard

FOL/Superintendent: \_\_\_\_\_

SSHO: \_\_\_\_\_

Type of Tasks Being Conducted Today: \_\_\_\_\_

Topics Discussed: \_\_\_\_\_

ATTENDEE'S NAME	JOB TITLE	AFFILIATION	SIGNATURE

Instructor(s): \_\_\_\_\_

Action Items/Due Date/Responsibility: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**FIGURE 2-5, MEDICAL DATA SHEET**

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

Project NAVSTA Mayport, Mayport, Florida

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

Address \_\_\_\_\_

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

Person to notify in the event of an emergency: Name: \_\_\_\_\_  
Phone: \_\_\_\_\_

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

Previously Existing Medical Conditions that could be aggravated by planned activities: \_\_\_\_\_

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

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

What medications are you presently using? \_\_\_\_\_

\_\_\_\_\_

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

\_\_\_\_\_

\_\_\_\_\_

---

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**Note: Health Insurance Portability and Accountability Act (HIPAA) Requirements**

HIPAA took effect 1996 and was amended in April 14, 2003. Loosely interpreted, HIPAA regulates the disclosure of Protected Health Information (PHI) by the entity collecting that information. PHI is any information about health status (such as that you may report on this Medical Data Sheet), provision of health care, or other information. HIPAA also requires TtNUS to ensure the confidentiality of PHI. This Act can affect the ability of the Medical Data Sheet to contain and convey information you would want a Doctor to know if you were incapacitated. So before you complete the Medical Data Sheet understand that this form will not be maintained in a secure location. It will be maintained in a file box or binder accessible to other members of the field crew so that the can accompany an injured party to the hospital.

DO NOT include information that you do not wish others to know, only information that may be pertinent in an emergency situation or treatment.

---

---

_____	_____	_____
Name (Print clearly)	Signature	Date

**FIGURE 2-6, EQUIPMENT INSPECTION CHECKLIST FOR DRILL RIGS**

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

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

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

Equipment Type: \_\_\_\_\_

(e.g., Drill Rigs Hollow Stem, Mud Rotary, Direct Push, etc.)

Project Name: NAVSTA Mayport, Mayport, Florida

Project No#: 112G00436

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

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**Equipment Inspection Checklist for Drill Rigs**

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

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

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

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**Equipment Inspection Checklist for Drill Rigs**

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

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

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

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**Equipment Inspection Checklist for Drill Rigs**

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

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

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

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Approved for Use     Yes     No     See Comments

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

\_\_\_\_\_  
Operator

CTO 0033

## **2.2 GENERAL SAFE WORK PRACTICES**

In addition to the task-specific work practices identified, the following general safe work practices are to be observed when conducting work on-site. These practices establish a pattern of general precautions and measures for reducing risks associated with hazardous site operations.

- Eating, drinking, chewing gum or tobacco, taking medication, and/or smoking in contaminated or potentially contaminated areas or where the possibility for the transfer of contamination exists or within designated operational areas is prohibited.
- A copy of the map to the hospital and the emergency telephone numbers must be maintained where it is immediately accessible to all site personnel. It is also recommended that a copy of these articles be placed in the First-Aid Kit for immediate access.
- Attend briefings on anticipated hazards, equipment requirements, emergency procedures, and communication methods before going on site. This is especially critical when communication must take place with the Tower. Be clear in your communication, be brief in your request, and repeat directions given to insure there is no confusion.
- Immediately report injuries, illnesses, and unsafe conditions, practices, and equipment to the SSHO.
- Inform co-workers of potential symptoms of illness, such as headaches, dizziness, nausea, or blurred vision. These symptoms could be indicative of potential chemical exposure or possibly heat stress related conditions.

## **2.3 NATURAL HAZARDS REVIEW**

In the accomplishment of the surface and subsurface soil assessment crews may be required to enter unmaintained areas which could potentially expose them to natural hazards including snakes, alligators, spiders/insects, poisonous vegetation, and inclement weather.

### **2.3.1 Snakes of Florida**

The poisonous snakes found in Florida are the coral snake, cottonmouth or water moccasin, copperhead, and the pygmy, timber, and diamondback rattlesnakes. Initial efforts will be directed to avoid, where possible, nesting and territorial areas.

### 2.3.1.1 Coral Snake

Coral Snakes are extremely poisonous snakes with small, blunt heads and brightly colored bodies. They do not strike as effectively as other venomous snakes, but they bite. They are dangerous if stepped on or handled. The *eastern* coral snake generally ranges from 20 to 40 inches in length. Its body is encircled by broad black and red bands separated by narrow yellow ones. Just behind the snake's black snout is a wide yellow band followed by a black band. Some are covered with black pigment that hides much of the red color. Some nonpoisonous snakes look like coral snakes because they have similar coloring. But coral snakes have red bands next to yellow ones. The harmless snakes have red bands next to black ones.



### 2.3.1.2 Cotton Mouth or Water Moccasin

The water moccasin is a pit viper. It has a hollow, or pit, in the side of its head, between and slightly below the eye and nostril. Several harmless water snakes have a broad head like the moccasin, but they lack the pit. Adult water moccasins are about 3½ feet long, though some grow to more than 5 feet long. They usually have broad dark bands across their bodies. Water moccasins feed on a wide variety of animals, including frogs, fish, small mammals, and birds. Water moccasins are most often seen in watery places, in the swampy backwaters of rivers and streams, and on marshy lakeshores. The bite of the water moccasin is highly dangerous and may be fatal. This snake is also called a cottonmouth because when threatened it throws back its head and flashes its white-lined mouth as a warning signal.



### 2.3.1.3 Copperhead

The Copperhead is also a poisonous pit viper. Its body has broad chestnut-red bands. Most copperheads are about 2½ feet long while the largest grow to about 4 feet. The copperhead bites people more often than most rattlesnakes, partly because it is silent and smaller, and is not so quickly noticed. The bite is seldom fatal to adults. This reptile usually eats rodents and other small mammals by killing them with their poison and swallowing them whole. Sometimes the snake eats insects and frogs. The copperhead can be identified by the presence of a pit in front of and below each nostril.



### 2.3.1.4 Rattlesnake

The rattlesnake is a pit viper with a rattle on the end of its tail. The rattle is used to warn enemies to stay away. However, sometimes they give no warning before biting. The rattlesnake always lifts its tail when it sounds where as harmless snakes that mimic the rattlesnake move their tails back and forth on top of dry leaves or grass. The diamondback rattler is the heaviest of the poisonous snakes, though not the longest. It gets its name because diamond-shaped blotches edged with yellow cover its body. Diamondbacks grow 3 to 6 feet long.



### 2.3.1.5 Pigmy Rattlesnakes

Pigmy rattlesnakes are short, relatively thick-bodied snakes. They have a dark line through the eye on each side of the face and a series of dark, roughly circular spots running down the center of the back. These dorsal spots interrupt a thin reddish-orange stripe that runs along the midbody line. Pigmy rattlesnake's first line of defense is to remain motionless. Their color pattern makes them hard to see in grass or leaf litter, especially when they are coiled. They almost never warn approaching people by sounding their rattle. They are



### 2.3.1.6 Timber Rattlesnake

The Timber Rattlesnake has a large body and ranges in length of five to six feet. It has a broad triangular head, vertical pupils and heat sensitive pits. The body color may be yellow, gray, dark brown or black, with dark, V-shaped crossbands across the back. The head is usually unpatterned and is covered with many small scales. A distinct rattle on the end of a darkly colored tail produces a buzzing sound when vibrated.



Rattlesnakes send out poison through two long hollow fangs, in its upper jaw. The poison forms in a pair of glands behind each eye on the upper jaw. The rattlesnake's fangs are folded back in the mouth when not in use. When an angry rattlesnake strikes, the fangs are erected and the mouth opened wide. Most rattlesnakes eat birds, small mammals, amphibians and reptiles. The larger rattlers rank among the most dangerous of snakes and should be avoided.

*Photos are the courtesy of Online Guide to Snakes of Florida.*

## 2.3.2 Snake Bites

**All efforts will be directed towards avoidance.**

- Leave snakes alone. DO NOT attempt to capture or otherwise harass a snake. Remain at least 6 feet away. Remember a snake can strike a target their body length away.

- During the initial site evaluation if you must venture into high brush snake chaps or protective boots will be worn in tall grasses and within wooded areas, along waterways/containment ponds.
- Snakes often will nest or hunt from underneath ground cover (debris, etc.). DO NOT stick your hands or feet in areas you can't see. If you must pick up ground cover (which we will) pull the article towards your body so that it may serve as a shield should there be a snake underneath.
- Be cautious and alert when moving debris piles as again these provide nesting and hunting areas.
- Snakes will often take refuge under a log or in an area where a physical barrier offers protection to one side. Many bites occur when people set down on the log or step over it startling the snake. To avoid this examine any area closely before setting down. DO NOT step over logs but on them then away from them to avoid being bitten.

However, should field personnel come in contact with these reptiles and receive a bite, the following actions are necessary:

- Obtain a detailed description of the snake. This and the bite mark will enable medical personnel administering medical aid to provide prompt and correct antidotes, as necessary.
- Immobilize the bite victim to the extent possible. Physical exertion will mobilize the toxins (if poisonous varieties) from the bite point systemically through the body.
- Apply a pressure wrap (for extremities), just above and over the bite area. With a couple wraps of the pressure wrap in place over the bite area, apply a splint, and continue the application of the pressure wrap. The purpose for the splint is to restrict the movement of the extremity, this along with the pressure wrap will aid in restricting the toxins from leaving the site of the bite.
- Seek medical attention immediately.

### **2.3.3 Alligators**

Alligators are indigenous to southeastern portion of the United States and may be present in ponds, swamps, drainage channels, and other wet areas. Alligators are fairly inactive in the winter months when the water temperatures are cool; their metabolism slows down and there is little need for food. The breeding season is mostly during April and May (but may begin as early as mid-February); male and female move around more during this time. Nests are constructed by the female during June and July.

The female will build a nest of leaves and vegetation up to 6 feet across and several feet high. She lays and buries her eggs in the center of this mound, allowing the warmth of the pile to incubate the eggs. Females typically lay over 50 eggs and each egg is about 3 inches long. The eggs incubate for about 9 weeks, and the female will watch and defend the nest during this time. As the young hatch, they "peep" and the female will assist them by digging them out of the nest. Newborn alligators are about 9 inches long and will stay near the female for up to a year. The female will continue to protect the young during this period.

Alligators are very protective of their domain during courtship and nesting. Alligators can outrun humans for short distances.

Other indication of their presence includes slides (areas marked by entering and exiting the water) and areas of cleared access for purposes of sunning (internal thermal regulation).

#### **Control Measures**

- Treat alligators with extreme caution. Never approach an alligator, either on land or in the water.
- If activities (wells near drainage channels or ponds or other surface water impoundments) involves entering areas where alligators may be present, use an "alligator-watch" as a lookout.
- When in areas where alligators may exist, always leave yourself a clear means of retreat.

#### **2.3.4      Spiders**

A number of venomous spiders are found in Florida, most notably the Window Spiders and the Recluse Spiders.

#### 2.3.4.1 Black Widow

In nature, most species are found under rocks and logs, but they readily adapt to human-altered environments, where they are most commonly found in outbuildings (sheds, barns, outhouse), water meter holes, and under any item or structure (e.g., barbecue grill, slide, sand box) that has been undisturbed for a lengthy period such as protective casings for monitoring wells. Formerly, most bites by black widows (almost all by female spiders) occurred in outhouses, but presently, bites occur most frequently when the spider is trapped against human skin, either by reaching under objects where the spider is hiding or when putting on clothing, gloves or shoes containing the spider. There are four species of Widow Spiders in Florida (Southern Black, Northern Black, Brown, and Red Widow). Bite symptoms are systemic, spreading through the lymphatic system, and usually start about 1 to 3 hours after the bite. The most common symptoms are intense pain, rigid abdominal muscles, muscle cramping, malaise, local sweating, nausea, vomiting, and hypertension. If left untreated, bite symptoms usually last 3 to 5 days.



#### 2.3.4.2 Brown Recluse Spiders

Recluse spiders can be abundant in human structures. Similar to widow spiders, recluse spiders usually bite only when they become trapped next to the victim's skin. Bites occur either when sleeping humans roll onto the spider or put on clothes into which the spider has crawled. Recluse bites range in intensity from no noticeable effect to severe necrosis. Typical symptoms are as follows: Symptoms start 2 to 6 hours after the bite. Blisters frequently appear at the bite site, accompanied by severe pain and pronounced swelling. A common expression is the formation of a reddish blister, surrounded by a bluish area, with a narrow whitish separation between the red and blue, giving a 'bull's-eye' pattern.



*Information concerning the spiders was obtained from *Venomous Spiders in Florida*, G. B. Edwards, Taxonomic Entomologist, FDAC.*

### **2.3.5      Insect Bites and Stings**

#### **2.3.5.1      Fire Ants**

Various insects and animals may be present and should be considered. For example, fire ants present a unique situation when working outdoors in the southern portion of the United States. Their aggressive behavior and their ability to sting repeatedly can pose a unique health threat. The sting injects venom (formic acid) 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, shrub, or in our case monitoring well pads. 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, fire ants defend themselves by swarming out and over the mound, even running up grass blades and sticks.

In areas that are not typically maintained/areas of infrequent activity will also be predisposed to bees nests again such as in our case monitoring well protective casings.

Insect/animal bites and stings are difficult to control given the climate and environmental setting of NAVSTA Mayport.

#### **2.3.5.2      Tick and Mosquito Transmitted Illnesses and Diseases.**

Ticks and Mosquitoes – Several illnesses can be transmitted to individuals if they are bitten by an infected tick (e.g., Lyme's disease, Rocky Mountain Spotted Fever, Southern Tick-Associated Rash Illness, and others). Mosquito bites can also result in serious illnesses such as malaria and encephalitis. Information on recognition, evaluation, and prevention of tick and mosquito bites is contained in Section 4.0 of the TtNUS HSGM (available on the company intranet site on the Health and Safety web page at [http://intranet.ttnus.com/\\_private/\\_ref/Guidance%20Manual.pdf](http://intranet.ttnus.com/_private/_ref/Guidance%20Manual.pdf)).

Mosquitoes. Malaria may occur when a mosquito or other infected insect sucks blood from an infected person, and the insect becomes the carrier to infect other hosts. The parasite reproduces within the mosquito, and is then passed on to another person through the biting action. Acute symptoms include chills

accompanied by fever and general flu like symptoms. This generally terminates in a sweating stage. These symptoms may recur every 48 to 72 hours.

West Nile Virus (WNV). The WNV is a type of virus that causes encephalitis or inflammation of the brain. The virus is transmitted by mosquitoes that acquire it from infected birds. Symptoms generally occur five to 15 days following the bite of an infected mosquito, and range from a slight fever or headache to rapid onset of severe headache, high fever, stiff neck, muscle weakness, disorientation and death.

WNV encephalitis has no specific treatment. In northern areas of the world, WNV encephalitis cases occur primarily in the late summer or early fall. In southern climates, where temperatures are milder, WN encephalitis can occur year round. There is no vaccine.

### **2.3.5.3 Insect Bite and Sting Control Measures**

In general, personnel on site must:

- Be aware of potential areas and conditions where these types of insects may be encountered.
- Use repellants in accordance with manufacturer's recommendations (repellants containing DEET should be applied on exposed skin areas, and repellants containing Permethrin should be applied on clothing).
- Wear light-colored clothing so that insects can be more easily noticed.
- Remove any embedded ticks as soon as they are noticed and disinfect the site of the bite. To remove an embedded tick, use tweezers and grasp the tick as close to the head as possible and pull directly out (do not twist the tweezers while pulling).
- Tape bottom of pant legs to top of work boots to prevent using duct tape.
- Perform close body inspections at least at the end of each day.
- In addition to the above, wear Tyvek coveralls (and tape ankle joints) if working in or walking through heavy brush or wooded areas.
- In areas where grass will be kept cut and maintained this potential is greatly reduced (except for Fire Ants).
- The FOL/SSHO will preview access routes and work areas in an effort to identify physical hazards including nesting areas in and around the work sites. These areas will be flagged and communicated to site personnel.
- The FOL/SSHO must determine if site personnel (through completion of Medical Data Sheets), suffer allergic reactions to bee and other insect stings and bites. Field crew members who are allergic to bites should have their emergency kit containing antihistamine and a preloaded syringe of epinephrine readily available.

Any allergies (insect bites, bee stings, etc.) must be reported on the Medical Data Sheet and to the SSHO.

## **2.4 POISONOUS PLANTS**

Various plants which can cause allergic reactions may be encountered during field work. These include poison ivy, poison oak, poison sumac, and Florida Holly. Contact with these plants may occur when accessing remote location as a result of movement through these plants. An irritating, allergic reaction can occur after direct contact with the plant or indirect contact through some piece of equipment or clothing article. Oils are transferred from the plant to exposed skin, clothing, or piece of equipment. The degree of the irritating, allergic reaction can vary significantly from one person to the next.

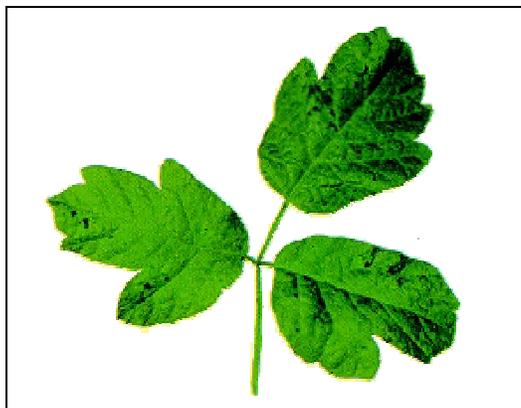
### **2.4.1 Poison Ivy**

Poison Ivy - Characterized by climbing vines, three leaf configuration ovate to elliptical in shape, deep green leaves with a reddish tint, greenish flowers, and white berries.



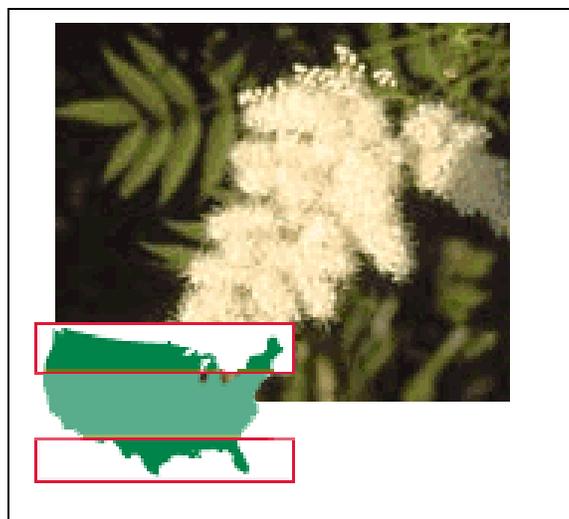
### **2.4.2 Poison Oak**

Poison Oak – Characterized as similar to poison ivy consisting of a scrub, stems erect 1 to 6 feet in height, leaflets consist of broad thick lobes, some are coarsely serrated, denser at the base, less at the top.



### **2.4.3**      **Poison Sumac**

Poison Sumac - Characterized as a tall bush of the sumac family bearing compound leaves (7 to 13 entire leaflets), branched from a central axis, drooping, with auxiliary clusters of white fruit: However, these white fruits and berries may exist only during pubescent stages.



### **2.4.4**      **Florida Holly (Brazilian Red Pepper)**

While it is commonly known as Florida Holly, the plant was brought to the state in the early 1800's from South America. Florida Holly is a member of the poison ivy, poison oak, poison sumac, and poisonwood families. Sensitive people may develop severe dermatitis if their bare skin comes into contact with the sap or resins. Many people also report respiratory problems when the plant is in bloom.



### **2.4.5**      **Protective Measures**

Protective measures may include wearing disposable garments such as Tyvek when moving through or clearing brush. These may be carefully removed and disposed of along with any oils accumulated from the plants.

The oils obtained from the plants will only elicit an allergic response when the person's bare skin layer is contacted. This can be aggravated when skin pores are open (perspiring), or through breaks in the skin such as cuts, nicks, scratches, etc. This can also be accomplished when using excessively hot water for cleaning the skin, which also causes pores to open. Prior to break time, lunchtime, etc. personnel should wash with cool water and soap to remove as much of the oils as possible. In heavily vegetated areas of these plants, additional measures including barrier creams and blocks may be used to further prevent the oils from accessing and penetrating the skin.

These plants present an airborne sensitization hazard when burned. Burning is not anticipated to occur as part of this scope of work and therefore will not be addressed.

## **2.5 EFFECTS OF THE SUN**

Care should be exercised when working in the outdoors due to the harmful effects of the sun including sun burn, heat stress, in some cases skin cancer. Precautions should include wearing hat that shades the face neck and ears; liberal use of sunscreen; wrap around sunglasses protecting sensitive skin around the eyes.

## **2.6 INCLEMENT WEATHER**

Weather conditions in this region can change rapidly. While darkening skies and an increase in winds are good indicators, the primary concern is lightning. Where possible, the FOL will obtain weather warnings from the tower/weather service at the airfield or through radio broadcasts. However, field personnel will practice the 30/30 Rule where no supported means exist. This rule states:

*If 30 seconds or less between thunder and lightning, go inside and remain there for at least 30 minutes after the last thunder.*

Heat stress is also considered inclement weather. While there are no additional PPE requirements that would advance conditions of heat stress the tasks associated with this scope of work including well abandonment and site restoration are physically demanding. Additional factors leading to heat stress or exhaustion may include high temperature and humidity, direct sun or heat, limited air movement, physical exertion, poor physical condition, some medicines, and inadequate tolerance for hot workplaces.

### **Symptoms of Heat Exhaustion**

- Headaches, dizziness, lightheadedness or fainting.
- Weakness and moist skin.
- Muscle cramps.
- Mood changes such as irritability or confusion.
- Upset stomach or vomiting.

### **Symptoms of Heat Stroke**

- Dry, hot skin with no sweating.
- Mental confusion or losing consciousness.
- Seizures or convulsions.

## **Preventing Heat Stress**

- Know signs/symptoms of heat-related illnesses; monitor yourself and coworkers.
- Block out direct sun or other heat sources wearing hats that provide shade to the head and neck.
- Take regular breaks.
- Drink lots of water; about 1 cup every 15 minutes.
- Wear lightweight, light colored, loose-fitting clothes.
- Avoid alcohol, caffeinated drinks, or heavy meals.

## **What to Do for Heat-Related Illness**

- Call 911 (or local emergency number) at once.
- Move the worker to a cool, shaded area.
- Loosen or remove heavy clothing.
- Provide cool drinking water, if the person is conscious and responsive.
- Apply cool compresses to the neck, head, and pulse points to facilitate cooling.

For additional information concerning heat stress and the monitoring requirements see Section 4.6 of the HSGM.

## **2.7 FLIGHTLINE OPERATIONS/RAMP TRAINING**

A number of the sample locations lie within restricted areas of an operating airfield including taxiways and runways. To access these areas, a number of provisions must be met, these include:

- All personnel accessing these areas must have current Ramp Training provided by the airfield. Requirements identified during this training will include information such as vehicle identification and warning requirements (rotating amber lights, orange and white checkered flags, etc.) must be implemented.
- Methods of communication – This may include providing radios to the airfield so they may match frequencies of the radio with the tower to establish communication with the tower or understanding what airfield demarcations mean.
- Light patterns and signals are as follows:
  - Blue lights – Outline taxiways, ramps and dispersal areas.
  - Red lights – Used to mark obstructions and construction work.

- White lights – Outline runways.
- Amber lights – Used to mark the departure end of the runway.
- Green lights – Threshold lights used to mark end of runways.
  
- Painted lines used to indicate airfield demarcation may also employ
  - Yellow painted lines as the edge of the taxiway.
  - Solid white line edge of runway.
  - When lines are painted as a traffic control mechanism, this system is usually supported by radio communication. If radio communications are employed insure the recipient repeats the request. For example – “Tower this TtNUS White Ford Pick-up requesting permission to cross 36R, Gate 2?” TtNUS permission to cross 36R at Gate 2 granted, denied, or Hold.”
  - The FOL will check in with airfield operations each day personnel will be working within airfields and or taxiways to insure clearance for a work location/area. The FOL will be responsible for planning (which locations to work the weekend that could be impeded by airfield operations) upcoming field work with airfield operations.
  
- FOD trained.

### **2.7.1 Foreign Objects and Debris (FOD)**

FOD will be eliminated from site vehicles prior to entering restricted flight line areas. Loose articles will be collected and disposed of or otherwise secured. FOD is loose debris/articles that can be sucked into an aircrafts engine/turbine causing significant degree of damage, as well as, safety hazards associated with the engine disintegration. To control hazards associated with the potential transfer of FOD, the following exclusion zone activities will be incorporated:

- Equipment tires will be checked prior to entering taxiways/runways to ensure they (tires) does not track or carry in stones and associated debris. This may be accomplished through visual inspections of the tires or vehicles entering the air side may travel over the FOD racks to shake out any loose debris or articles, where available.
  
- Non-essential equipment will be secured prior to entering areas where FOD is considered a problem.
  
- Equipment used in FOD sensitive areas will be accounted for.
  
- Practicing good housekeeping habits is the most effective method of eliminating FOD. "Good housekeeping" is nothing more than keeping the work areas clean and orderly, ensuring only

necessary items are brought into FOD sensitive areas and that all items are picked up after task completion and that all equipment and hardware is accounted for at the completion of a job.

- Control of personal equipment--hats, pens, pencils, papers, coins, line badges, safety equipment (i.e., ear plugs, safety glasses hard hats), and the like are to be accounted for.
- The FOL and/or the SSHO will ensure areas where work is conducted is left FOD free before releasing the area by conducting a walk over and removing any potential FOD items. Remember, asphalt and or concrete will not be disturbed in the flightline area or taxiways unless specific permission from the airfield has been obtained. These locations will be restored to equal or better conditions during restoration. Any concrete or asphalt debris will be collected.

☞ - If you are working in these areas be a responsible steward, it does not have to be your FOD to pick it up!

### 3.0 GEOGRAPHICAL SURVEYING

The Safe Work Packet for Geographical Surveying activities to be conducted at NAVSTA Mayport will include the following:

- Horizontal locations (approximate) of the soil samples collected will be recorded using handheld global positioning system (GPS). When this is done, landmarks or known monuments (monitoring wells) will also be recorded to tie these locations into known or fixed points.

The Safe Work Packet for this activity contains the following information:

- Table 3-1, Geographical Surveying Activity Hazard Analysis
- Site Maps (These are to be created as information is developed)

**TABLE 3-1 Geographical Surveying Activity Hazard Analysis**

**ACTIVITY:** Geographical Surveying

**ANALYZED BY/DATE:** Tom Dickson 10/2007

ACTIVITY / PHASE	POTENTIAL HAZARDS	RECOMMENDED ACTIONS / CONTROLS	
<p>Geographical surveying will utilize a portable handheld GPS to locate and mark soil sample location(s).</p>	<p>1) <u>Slips/Trips/Falls</u></p> <p>2) <u>Traffic Hazards</u></p>	<p><b>1) Slips, trips, and falls</b></p> <ul style="list-style-type: none"> <li>- Remove/identify trip hazards from within the work area.</li> <li>- Maintain good housekeeping within the work area.</li> <li>- Choose the best route of travel. Remember, it may not be the shortest.</li> </ul> <p><b>2) Vehicular and foot traffic - )</b> To minimize potential Vehicle Traffic Hazards Be extremely cautious around heavy, fast-moving equipment, vehicle traffic. Where possible:</p> <ul style="list-style-type: none"> <li>- Avoid activities in the street during peak times.</li> <li>- Motorists may be distracted by onsite activities – ASSUME THEY DO NOT SEE YOU OR MEMBERS OF YOUR FIELD CREW.</li> <li>- DO NOT place obstructions along the sides of the road or taxiways that may cause site personnel to move into the flow of traffic to avoid your activities or equipment. <b>Provide a required Free Space of Travel.</b> Your movement may startle a motorist and cause an accident.</li> <li>- Required "Free Space": Maintain at least 6 feet of space between you and moving traffic. Where this is not possible, use flaggers and/or signs to warn oncoming traffic of activities near or within the travel lanes.</li> <li>- Face Traffic: Whenever feasible, if you must move within the 6-feet of required space, or into traffic attempt to face moving traffic at all times. Always leave yourself an escape route.</li> <li>- Wear High Visibility Vests to increase visual recognition by motorist.</li> <li>- Do not rely on the operator's visibility, judgment, or ability. Make eye contact with the driver. Carefully and deliberately use hand signals so they will not startle or confuse motorists or be mistaken for a flagger's direction before moving into traffic.</li> <li>- Move Deliberately: Do not make sudden movements that might confuse a motorist.</li> <li>- Avoid where possible interrupting Traffic Flow: Minimize crossing traffic lanes.</li> </ul>	
<p><b>Hazard Monitoring Required:</b> Visual observation of work practices by the FOL and/or the SSHO to minimize potential physical hazards (i.e., improper lifting, unsecured loads, cutting practices, etc.).</p> <p>Inclement Weather – Use the 30/30 Rule – If there is 30 seconds or less between thunder and lightning go inside for 30 minutes or more since the last thunder. Unless weather control and reporting is supported by the tower. Check with your NAVSTA Mayport Point of Contact.</p>		<p><b>Decontamination Procedures:</b> Structured decontamination procedures are not required for this task. Good personal hygiene practices should be employed prior to breaks lunch or other period when hand to mouth contact occurs. This will minimize potential ingestion exposures.</p>	<p><b>Permits/Requirements:</b> None</p>
<p><b>PPE Requirements</b> (<i>Italicized items are as conditions dictate or at the SSHO's discretion</i>) <b>Level D</b> – Standard field attire (sleeved shirts, long pants), work boots with adequate traction, surveyors working along highways and traffic pathways shall wear high visibility vests to increase visual recognition.</p>			
<p><b>Training Required</b></p> <ul style="list-style-type: none"> <li>- 29 CFR 1910.120 (e) Site Specific Training (See Section 2.0 of the HSGM, Attachment 2-2).</li> <li>- Safe Work Packet Review/Tailgate Meeting Attendance (Figure 2-4).</li> </ul> <p><b>Medical Clearance/Surveillance Required</b> Completed a Medical Data Sheet (See Section 3, Figure 3-6 of the HSGM for Blank forms)</p>		<p><b>Emergency Equipment</b></p> <ul style="list-style-type: none"> <li>- First Aid Kit</li> <li>- Fire Extinguisher</li> <li>- Map to Hospital and Emergency Contact List (Place at least one copy in the First Aid Kit. See also Table 6-1).</li> </ul>	<p><b>Health and Safety Supporting Program Requirements</b></p> <p>None required.</p>

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## 4.0 SOIL BORING USING DPT

### 4.1 SOIL BORING

The Safe Work Packet for DPT Soil Boring activities on NAVSTA Mayport.

The Safe Work Packet for this activity contains the following information:

- Table 4-1, Soil Boring Using DPT Activity Hazard Analysis
- Drilling Safe Work Practices

 **Remember:**

- Finalize utility clearance procedures prior to drilling.
- Complete site-specific portion of the Hazard Communication Program Section 5.0 of the HSGM.

Collect MSDSs for boring abandonment materials including the following:

- Grout and bentonite
  - Add chemicals to your chemical inventory list
- 
- Complete site-specific portion of the Hearing Conservation Program (Attachment A).
  - Collect training, medical surveillance and driller's license.

**Table 4-1 Soil Boring Using DPT Activity Hazard Analysis**

**ACTIVITY:** Soil Boring (Subsurface Soil Sampling) Using DPT

**ANALYZED BY/DATE:** Tom Dickson 10/2007

ACTIVITY / PHASE	POTENTIAL HAZARDS	RECOMMENDED ACTIONS / CONTROLS
<p>DPT activities including:</p> <ul style="list-style-type: none"> <li>- Soil borings use a MacroCore sampling unit to obtain soil samples from discrete or continuous depths.</li> </ul> <p>This activity employs hydraulic pressure and percussion hammer to advance tooling into the ground.</p> <p>Once extracted, the acetate liner in the MacroCore sleeve is cut open to access the soil sample.</p>	<p><i>Physical hazards:</i></p> <p>1) Heavy equipment hazards (pinch/compressions points, rotating equipment, hydraulic lines, etc.)</p> <p>2) Noise in excess of 85 dBA</p> <p>3) Energized systems (contact with underground or overhead utilities)</p> <p>4) Lifting (strain/muscle pulls)</p> <p>5) Slips, trips, and falls</p> <p>6) Cuts/Lacerations</p>	<p><b>1) Heavy Equipment Hazards -</b></p> <ul style="list-style-type: none"> <li>- The DPT unit will be inspected prior to use. All inspections will be documented using the Equipment Inspection Checklist found in (Mobilization/Demobilization Safe Work Packet) of this HASP.</li> <li>- All equipment will be operated and supported by certified operators and knowledgeable ground crew.</li> <li>- Site control boundaries for this operation will be set at least 25 feet from the point of operation to remove unauthorized and non-essential personnel from physical hazards associated with this operation.</li> </ul> <p><b>2) Noise in Excess of 85 dBA</b> – Noise levels associated with this operation range from 90 to 102 dBA during advancement of tooling. Controlling this hazard shall be accomplished employing two separate approaches as follows:</p> <ul style="list-style-type: none"> <li>- Boundaries will be established to limit the affect of the noise hazard (See above).</li> <li>- Use hearing protection (ear plugs, muffs, etc.)</li> </ul> <p>Remember the general rule of thumb - <i>Excessive noise levels (&gt;85dBA) are being approach when you have to raise your voice to talk to someone within 2 feet of your location.</i></p> <p><b>3) Energized Systems</b> - All drilling activities will proceed in accordance with the Utility Locating and Excavation Clearance SOP in Section 7.0 of the HSGM and the excavation Permit Request provided in this Safe Work Packet. See Before Drilling in the Drilling Safe Work Practices.</p> <p><b>4) Lifting Hazards</b> - Use machinery or multiple personnel for heavy lifts. Use proper lifting techniques as described in Section 4.4 of the HSGM.</p> <p><b>5) Slips, Trips, and Falls</b> - Preview work locations for unstable/uneven terrain. See Section 4.1 of the HSGM concerning measures to combat hazards associated with uneven or slippery terrain. The most effective method in eliminating slips, trips, and falls is good housekeeping.</p> <p><b>6) Cuts and Lacerations</b> - To prevent cuts and lacerations associated with extracting samples from the acetate liners of the Macro-Core Sampler, the following provisions are required:</p> <ul style="list-style-type: none"> <li>- Obtain and use the knife and acetate tube retention tub recommended by Geoprobe to prevent accidents of this nature. These items have been engineered to allow sample acquisition without putting the sampler at risk.</li> <li>- Always cut away from yourself and others, then, if a knife slips, you will not impale yourself or others.</li> <li>- Do not place items to be cut in your hand or on your knee.</li> <li>- Change out blades as necessary to maintain a sharp cutting edge. Many accidents result from struggling with dull cutting attachments.</li> </ul>

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ACTIVITY / PHASE	POTENTIAL HAZARDS	RECOMMENDED ACTIONS / CONTROLS	
	7) Vehicular and foot traffic  <i>Natural hazards:</i>  8) Inclement weather	<b>7) Vehicular and Foot Traffic Hazards</b> - Use Free space of travel, traffic-warning signs, flag persons, and high visibility vests as determined by the SSHO when working along traffic thoroughfares or active taxiways. In addition, use physical barricades, when working within normal traffic flow patterns/traffic lanes. See traffic control measures in packet 3.0 for additional recommendations.  <b>Natural hazards:</b>  <b>8) Inclement Weather</b> – To minimize hazards of this nature, the following provisions shall be employed: - Electrical storms/high winds - Suspend or terminate operations until directed otherwise by SSHO. Follow the 30/30 rule.  Follow the provisions as specified in Section 4.0 of the TtNUS HSGM regarding the identification and evaluation of heat/cold stress related conditions.	
<b>Chemical hazards:</b> None anticipated. See Section 1.4 for general contaminant discussion. These areas have been selected based on the absence of potential contaminant sources as determined through historical evaluation.			
<b>Hazard Monitoring Required:</b>  The FOL and SSHO will be attentive to work practices (proper lifting, insuring personnel are avoiding hand to mouth activities, diligent use of PPE, etc.)  Hazard monitoring for chemical contaminants is not required. If a location is selected where it is suspected may be contaminated (odors, gases, etc.) – Stop Work – Notify the TOM/HSM.	<b>Decontamination Procedures:</b> <b>Equipment</b> – Continuous tubes, MacroCore samplers, cutting shoes will be washed/rinsed in 5-gallon buckets at the boring location. In addition, the cutting shoe will also be rinsed with isopropanol and deionized water. These will be allowed to air dry visually examined by the FOL to insure cleanliness.  Personnel Decontamination– <ul style="list-style-type: none"> <li>• Secure all drilling operations.</li> <li>• Wash and rinse disposable PPE.</li> <li>• Dispose of dedicated PPE as general refuse.</li> <li>• Wash hands and face or use hygienic wipes to remove potential contaminants from the hands and face. This will minimize potential ingestion exposures.</li> </ul>	<b>Permits/Requirements:</b> <ul style="list-style-type: none"> <li>- Obtain Driller's License/Certification for Florida for planned drilling activities</li> <li>- Obtain well permits for planned drilling activities (even soil borings) that will breach the water table.</li> </ul>	

<p><b>PPE Required</b></p> <p>Hard-hat <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Hearing Protection (Plugs/Muffs) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Safety Glasses <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Safety belt/harness <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Chemical/splash goggles ..... <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Radio/Cellular Phone <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Splash Shield <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Barricades <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Splash suits/coveralls <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Gloves (Type – See Note) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Impermeable apron <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Work/rest regimen <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Steel toe Work shoes/boots ..... <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Chemical Resistant Boot Covers <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <hr/> <p>High Visibility vest <input type="checkbox"/> Yes <input type="checkbox"/> No Tape up/use insect repellent <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>First Aid Kit <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Fire Extinguisher <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Safety Shower/Eyewash <input type="checkbox"/> Yes <input type="checkbox"/> No Other <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Modifications/Exceptions: High Visibility Vests for high traffic areas; Nitrile or neoprene gloves for handling contaminated drilling equipment and handling sampling tools. Always wear clean gloves when handling clean sampling equipment. The use of chin straps on hardhats on the flightline should be evaluated by the SSHO. A 2A:30B:C Portable fire extinguisher will be onsite for all general activities.</p>		
<p><b>Training Required</b></p> <ul style="list-style-type: none"> <li>- 29 CFR 1910.120 (e) 40-Hour General Site Worker Training</li> <li>- 29 CFR 1910.120 (e) (8) 8-Hour General Site Worker Refresher Training</li> <li>- 29 CFR 1910.120 (e) (4) 8-Hour General Site Worker Supervisory Training</li> <li>- 29 CFR 1910.120 (e) Site-Specific Training (Figure 2-3)(See Section 2.0 of the HSGM, Attachment 2-2).</li> <li>- Ramp Training</li> <li>- Safe Work Packet Review/Tailgate Meeting Attendance (Figure 2-4).</li> </ul> <p><b>Medical Clearance/Surveillance Required</b></p> <ul style="list-style-type: none"> <li>- Be a participant in a Medical Surveillance meeting the requirements of 29 CFR 1910.120 (f)</li> <li>- Completed a Medical Data Sheet (See Section 3, Figure 3-6 of the HSGM for Blank forms)</li> </ul> <p>Documentation to be maintained onsite.</p>	<p><b>Emergency Equipment</b></p> <ul style="list-style-type: none"> <li>- First Aid Kit</li> <li>- Fire Extinguisher</li> <li>- Map to Hospital (Figure 7-1)</li> <li>- Emergency Reference (Table 7-1)</li> <li>- Spill pads for oils</li> </ul>	<p><b>H&amp;S Supporting Program Requirements</b></p> <ul style="list-style-type: none"> <li>• Hazard Communication Program(Section 5.0 HSGM)             <ul style="list-style-type: none"> <li>- Collect and review MSDSs for Bore hole abandonment materials                 <ul style="list-style-type: none"> <li>○ Sand</li> <li>○ Betonite</li> <li>○ Grout</li> <li>○ Concrete</li> </ul> </li> <li>- Collect and review MSDS for Decontamination Solution - Liquinox</li> </ul> </li> <li>• Hearing Conservation Program (Section 6.0 HSGM)</li> </ul>
<p><b>Spill Containment:</b></p> <p>DPT Rigs are notorious for rupturing hydraulic lines. To minimize this potential</p> <ul style="list-style-type: none"> <li>• Focus on these lines and connections during your equipment inspection for wear and signs of overheating.</li> <li>• Have spill pads, oil dry, or cat litter at the rig should a line rupture for immediate response.</li> <li>• It is further recommended in situations where the lines or connections are suspect that plastic sheeting be placed under the rig (in the back where the hydraulic are) to serve as a catch should a line rupture.</li> </ul>		

## **4.2 DRILLING SAFE WORK PRACTICES**

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

### **4.2.1 Before Drilling**

#### **Utility Clearance Procedure**

- Identify all underground utilities and buried structures before drilling. This service is provided by the Sunshine State One Call of Florida (1-800-432-4770) and coordinated with NAVSTA Mayport Public Works. The typical sequence of events are as follows:
  1. A request is submitted to Sunshine State One Call of Florida (1-800-432-4770) for clearance of a location(s). Often times intersections, building numbers, or other location identifiers are provided. It is best to provide as much assistance as possible. As this activity covers the Base it may be necessary to break sample locations into quadrants for consideration. Ensure that marks are on the ground using white paint or flagging. Sunshine State One Call of Florida will then notify members within this cooperative. This is sometimes where problems arise. Not all utilities are required to be members. Provisions to accommodate this shortfall are provided in the TtNUS Utility Locating and Excavation Clearance SOP provided in Section 7.0 of the HSGM. In the excavation/utility clearance request ask that laterals be identified.
  2. Typical timeline for marking and providing clearances is 48 hours. A ticket or ticket number will be provided referring to your clearance. This will have a timeline, generally 14 days. Again, problems sometime arise here because site personnel allow their tickets to expire, then accidentally encounter a utility. Tickets must be maintained valid by asking for a re-issue or extension, when necessary, prior to expiration.
  3. Another problem that occurs with time is that utility locations marked on the ground may not remain visible. The FOL is responsible for ensuring that utility locations/marks on the ground are maintained so they remain visible (repaint, pin flags, etc.), and to annotate maps with these locations so they may be incorporated into the Site map.
  4. Lastly, once marks are placed on the ground and have been cleared, only limited leeway (2 feet) exists to stray from the planned and approved intrusive locations.

Once, a Ticket is obtained from Sunshine State One Call of Florida this ticket, along with the Excavation Request (Figure 4-1) will be submitted to Public Works at NAVSTA Mayport. NAVSTA Mayport has 2 weeks to determine if there are utilities within the areas to be subjected to subsurface investigation (>6 inches). A site map indicating the location of the subsurface investigation point must be included in the request. Once the waiting period is completed, check with your NAVSTA Mayport Point of Contact for status prior to beginning subsurface activities.

**Note:** When it is unknown, whether utilities exist in a certain area there are a number of passive methods that may be used to determine the existence or proximity of utilities. See Section 7.0 of the HSGM for description or contact the PHSO. When in doubt proceed by hand.

### **Before Drilling**

- Ensure that all machine guarding is in place and properly adjusted.
- The drillers or driller helper will establish an equipment staging and laydown plan. The purpose of this is to keep the work area clear of clutter and slips, trips, and fall hazards. Mechanisms to secure heavy objects such as drill rods, continuous tubing, MacroCore Sampler to avoid the collapse of stacked equipment. Strategic placement of tooling, decontamination supplies will minimize the need to step over materials.
- All motorized equipment will be fueled prior to the commencement of the day's activities. During fueling operations all equipment will be shutdown.

### **4.2.2 During Drilling**

- Minimize contact to the extent possible with contaminated tooling and environmental media. All potentially contaminated tooling will be placed on polyethylene sheeting. Areas surrounding the borings/wells will be restored to at least original condition.
- Support functions (sampling and screening stations) will be maintained a minimum distance from the drill rig of the height of the mast plus 5 feet or 25 feet for DPT rigs whichever is greater.
- Only qualified operators and knowledgeable ground crew personnel will participate in the operation of the drill rig.

**FIGURE 4-1, EXCAVATION PERMIT REQUEST**  
Naval Station Mayport

PERMIT NO. **MYPT-**

1a. Name of Company:		Date Requested:	Date Required:				
1b. Requestor:		Phone:	Cell Phone:				
1c. Government Contracting Office:		POC:	Tel.				
2a. Project Title:		Prime Contractor: <i>(if different than 1a,1b)</i>					
2b. Scope of Excavation (Specify Purpose, Method, Length and Depth of Area- Attached Site-Map)							
3. Permit Request Approval prior to locate: ( PW Engineering )							
Name: _____ Signature _____ Date: _____							
Comments:							
4.	Utility	Organization	Phone	Ticket#	Name of Locator	Initial	Date
4a.	Primary Elec	JCH Bldg 12	(904) 270-5397				
	Water & Sewer						
4b.	Secondary Elec	JCH Bldg 12	(904) 270-5347				
	Natural Gas	Sunshine State	1-800-432-4770				
	Tel/Com	Sunshine State	1-800-432-4770				
	CATV	Sunshine State	1-800-432-4770				
	Gov Fiber-Optics	ISR D Mayport	(904)270-6162				
		POC Ron Moore	Bldg 12				
	Gov Com-Cable	GEMD Mayport	(904)270-6148				
		POC Vern Benson	Bldg 450				
		PWO Environmental Div	(904)270-6730				
	<input type="checkbox"/> Excavation is within or near areas of contamination						
		POC Cheryl Mitchell	Bldg 2021				
	Navy owned –copper (phone cable)			:	:	:	:
	POC John Buettgen	NAS JAX	(904)542-4569	:	:	:	:
5. Permit Request Approval after locate ( PW Engineering)							
Name: _____ Signature _____ Date: _____							
Comments:							

**Contractor Supervisor:**

Name: \_\_\_\_\_ Signature: \_\_\_\_\_ Date \_\_\_\_\_

**Note: Provide copy of the completed Excavation Permit Request form to PW Engineering.**

The following person will be responsible for processing all excavation clearance requests.

Purifoy, Wayne CIV NAVSTA MAYPORT FL, N4 carey.purifoy@navy.mil (904) 270-5207 ext 128

- During maintenance, use only manufacturer provided/approved equipment
- Only personnel absolutely essential to the work activity will be allowed in the exclusion zone. Site visitors will be escorted at all times.

#### **4.2.3      After Drilling**

- All equipment used within the exclusion zone that has come in contact with contaminated media will undergo a complete decontamination and evaluation by the FOL and/or the SSHO to determine cleanliness prior to moving to the next location, exiting the site, or prior to down time for maintenance.
- When not in use all drill rigs will be shutdown, and emergency brakes set.
- All areas subjected to subsurface investigative methods will be restored to equal or better condition. In situations where these hazards cannot be removed these areas will be barricaded to minimize the impact on field crews working in the area and the general population who may have access to these areas.
- Remember walk over every area in the flightline restricted areas – Remove FOD whether it is yours or not!

**Remember:** The new National 811 Utility Clearance System has been rolled out. Utility clearance may be obtained through this system as well.

## 5.0 SOIL BORING USING HAND AUGERS

The Safe Work Packet for Soil Boring activities using hand augers on NAVSTA Mayport.

The Safe Work Packet for this activity contains the following information:

- Table 5-1, Soil Boring Using Hand Augers Activity Hazard Analysis

Table 5-1, Soil Boring Using Hand Augers Activity Hazard Analysis

ACTIVITY: Surface/Subsurface Soil Sampling using Hand Augers and/or Soil Corers ANALYZED BY/DATE: Tom Dickson 10/2007

ACTIVITY / PHASE	POTENTIAL HAZARDS	RECOMMENDED ACTIONS / CONTROLS
<p>Surface soil sampling using a Hand Auger and/or Soil core.</p> <p>The Hand auger is twisted into the ground. As it is twisted the cutting shoes/blades cut through the soil which is loaded into the hand auger bucket as it is advanced into the ground. Once the bucket is full the soil is unloaded by turning it upside down and emptying it from the topside of the bucket.</p> <p>A soil corer is advanced into the soil by applying downward pressure (body weight). The soil is unloaded by then forcing a ram towards the cutting shoe which results in the discharge of the soil core through a window in the sleeve.</p>	<p><i>Physical hazards:</i> 1) Physical strain (muscle pulls/strains, etc.)</p> <p><i>Natural hazards:</i> 2) Inclement weather</p>	<p><b>1) Physical strain (muscle pulls/strains, etc.)/Slips, trips and falls-</b> This activity can be physically demanding based on the type of geology and subsurface encumbrances encountered. To reduce the potential for muscle strain and damage the following practices will be employed</p> <ul style="list-style-type: none"> <li>- Stretch and limber your muscles before heavy exertion. This hazard becomes more predominant in the early morning hours (prior to muscles becoming limber) and later in the day (as a result of fatigue).</li> <li>- Job rotation – Share the duties so that repetitive actions do not result in fatigue and injury.</li> <li>- Increase break frequencies as needed especially as ambient conditions may dictate.</li> <li>- Do not force the hand tool or use cheater pipes or similar devices to bypass an obstruction. Move to another location near the sampling point. Exerting additional forces on the sampling devices can result in damage and/or failure which could potentially injure someone in the immediate vicinity.</li> <li>- Do not over compromise yourself when applying force to the soil corer or hand auger. If there is a sudden release this could result in a fall or muscle injury due to strain.</li> </ul> <p><b>Natural hazards:</b></p> <p><b>2) Inclement Weather</b> – To minimize hazards of this nature, the following provisions shall be employed:</p> <ul style="list-style-type: none"> <li>- Electrical storms/high winds – Suspend or terminate operations until directed otherwise by SSHO. Follow the 30/30 rule.</li> </ul> <p>If there is less than 30 seconds between thunder and lightning seek shelter for at least 30 minutes from the last thunder.</p> <p><b>Remember:</b> That soil corer and/or hand auger makes a wonderful lightning rod and/or ground rod!</p> <p>Follow the provisions as specified in Section 4.0 of the TtNUS HSGM regarding the identification and evaluation of heat/cold stress related conditions.</p>

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**Chemical hazards and Controls:**

None anticipated. See Section 1.4 for general contaminant discussion. These areas have been selected based on the absence of potential contaminant sources as determined through historical evaluation.

**Remember:** Ingestion is the primary concern achieved through incidental hand to mouth contact. Diligent use of PPE, good work hygiene practices, and no hand to mouth activities, and diligent decontamination procedures will control potential exposure and cross contamination.

**Hazard Monitoring Required:**

Visual observation of work practices to insure hand to mouth contact in minimized and good work hygiene habits are employed.

**Decontamination Procedures:**

**Equipment** – The hand augers will be washed/rinsed in 5-gallon buckets at the sample location. The procedure is as follows:

- Wash and rinse using soap and water to remove visible soils. Rinse using low pressure sprayer filled with potable water and one with deionized water.
- Rinse with deionized water
- Air dry wrap in aluminum foil until which time to be re-used.

**Personnel decontamination procedure:**

- Secure all soil sampling equipment (decontamination, etc.)
- Rinse visible soils from the outer Nitrile surgeon gloves.
- Remove outer surgeons gloves dispose of as normal refuse.
- Replace with new gloves prior to moving to the next location.
- If you are taking a break, clean hand with Hygiene Hand wipes or soap and water wash and rinse prior to hand to mouth activity. This will minimize potential ingestion exposures.

**Permits/Requirements:**

- None required

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**PPE Required**

- |                               |   |  |                                    |   |  |
|-------------------------------|---|--|------------------------------------|---|--|
| Hard-hat.....                 | <input type="checkbox"/> Yes            | <input type="checkbox"/> No            | Hearing Protection (Plugs/Muffs)   | <input type="checkbox"/> Yes            | <input type="checkbox"/> No            |
| Safety Glasses .....          | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | Safety belt/harness .....          | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No |
| Chemical/splash goggles ..... | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | Radio/Cellular Phone .....         | <input type="checkbox"/> Yes            | <input type="checkbox"/> No            |
| Splash Shield .....           | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | Barricades .....                   | <input type="checkbox"/> Yes            | <input type="checkbox"/> No            |
| Splash suits/coveralls.....   | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | Gloves (Type – See Note).....      | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            |
| Impermeable apron .....       | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | Work/rest regimen.....             | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No |
| Steel toe Work shoes/boots .. | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | Chemical Resistant Boot Covers     | <input type="checkbox"/> Yes            | <input type="checkbox"/> No            |
| High Visibility vest .....    | <input type="checkbox"/> Yes            | <input type="checkbox"/> No            | Tape up/use insect repellent ..... | <input type="checkbox"/> Yes            | <input type="checkbox"/> No            |
| First Aid Kit.....            | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | Fire Extinguisher .....            | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            |
| Safety Shower/Eyewash .....   | <input type="checkbox"/> Yes            | <input type="checkbox"/> No            | Other .....                        | <input type="checkbox"/> Yes            | <input type="checkbox"/> No            |

Modifications/Exceptions: High Visibility Vests for high traffic areas; Nitrile surgeons' gloves layered to permit easy change out between locations.  
Hearing protection and hard hat use will be determined by the SSHO.

**Training Required**

- 29 CFR 1910.120 (e) 40-Hour General Site Worker Training
- 29 CFR 1910.120 (e) (8) 8-Hour General Site Worker Refresher Training
- 29 CFR 1910.120 (e) (4) 8-Hour General Site Worker Supervisory Training
- 29 CFR 1910.120 (e) Site Specific Training (see Section 2.0 of the HSGM, Attachment 2-2).
- Ramp Training
- Tailgate Meeting Attendance (Figure 2-4) for this Activity.

**Medical Clearance/Surveillance Required**

- Be a participant in a Medical Surveillance Meeting the Requirements of 29 CFR 1910.120 (f)
  - Completed a Medical Data Sheet (See Mobilization/Demobilization Safe Work Packet or Section 3, Figure 3-6 of the HSGM for blank forms)
- Documentation to be collected and maintained onsite.

**Emergency Equipment**

- First Aid Kit
- Fire Extinguisher
- Map to Hospital and Emergency Contact List (Table 7-1) should be posted or maintained in the first aid kit for rapid access.

**Health and Safety Supporting Program Requirements**

- None

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## 6.0 IDW MANAGEMENT

The Safe Work Packet for IDW Management activities on NAVSTA Mayport.

The Safe Work Packet for this activity contains the following information

- Table 6-1, IDW Management Activity Hazard Analysis
- Figure 6-1, Investigative Derived Waste Inventory List

 **Remember:**

- Complete IDW Inventory Sheets. Provide copies to your NAVSTA Mayport Point of Contact upon request.
- All personnel must complete the Mobilization/Demobilization Safe Work Packet and review the Emergency Action Plan in addition to task-specific Safe Work Packets.

**TABLE 6-1 IDW Management Activity Hazard Analysis**

**ACTIVITY:** IDW Management

**ANALYZED BY/DATE:** Tom Dickson 10/2007

ACTIVITY / PHASE	POTENTIAL HAZARDS	RECOMMENDED ACTIONS / CONTROLS
<p>IDW Management Activities will include:</p> <ul style="list-style-type: none"> <li>• Containerizing decontamination waters</li> <li>• Containerizing soil cuttings</li> <li>• Staging and labeling containers.</li> </ul>	<p>1) Lifting</p> <p>2) Pinches and compressions</p> <ul style="list-style-type: none"> <li>• Foot hazards</li> </ul>	<p><b>1) Lifting (strain/muscle pulls)</b></p> <ul style="list-style-type: none"> <li>• Use mechanical means (i.e., dollies, heavy equipment) to move and handle containers. Use proper lifting techniques described in Section 4.4 of the Health and Safety Guidance Manual (HSGM).</li> </ul> <p><b>2) Pinches and compressions</b> – During placement of drums/containers on pallets use machinery or assistance from another person where possible. Keeps hand out of the area between drums. Wear steel toed shoes with adequate lug to support traction when moving heavy containers. Do not fill drums greater than 80%.</p> <p><b>Reminder:</b> The drums you are attempting to move, lift and/or relocate may weigh on the average of</p> <ul style="list-style-type: none"> <li>• 55-Gallon container of purge or decontamination waters = 475 lbs. (including the container)</li> <li>• 55-Gallon container of soils (moist) = 750 lbs. (including the container)</li> </ul> <p>To further reduce material handling hazards, support spill containment and control, and sampling when necessary, the IDW storage area should be structured as follows:</p> <ul style="list-style-type: none"> <li>- Maximum 4-drums to a pallet with retaining ring bolt and label on the outside for easy access/reference.</li> <li>- Maintain a minimum of 4-feet between each row of pallets. This is the minimum distance necessary to wheel drums on a drum dolly.</li> <li>- If the site is not secured, the satellite storage area shall be fenced and signs placed indicating the following:             <ul style="list-style-type: none"> <li>a. Primary Point of Contact (make sure they know they been identified as the primary point of contact).</li> <li>b. Phone Number</li> <li>c. Emergency Contact (If different from the primary)</li> </ul> </li> <li>- Provide a Drum/Container Inventory to the Primary Point of Contact and to Emergency Services, if they deem it necessary. The inventory should contain:             <ul style="list-style-type: none"> <li>a. Each drum shall be assigned a unique identification number. This number shall be placed on the label and drum shell using a paint marker (Note: Do not paint the number on the lid as these have a tendency to get exchanged from time to time.)</li> </ul> </li> </ul>

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ACTIVITY / PHASE	POTENTIAL HAZARDS	RECOMMENDED ACTIONS / CONTROLS	
	3) Slips/Trips/Falls	b. Types of waste materials (subsurface soils, drill cuttings; purge/development waters, etc.) c. Volumes (full or level associated with the container after completion of the project location) d. Where it was derived from (IDW should be separated by media and location) e. Dates (for all filled containers and at the completion of work for that area) f. Contact – For more information  Ensure all lids are secured.  <b>3) Slips, trips, and falls</b> <ul style="list-style-type: none"> <li>• Remove/identify trip hazards from the work area. This is critical when moving containers with weight of this magnitude.</li> <li>• Maintain good housekeeping within the work area.</li> </ul>	
<p><b>Spill Containment</b> - Within this scope of work there are two areas/activities identified as vulnerable to potential spills. This includes</p> <ul style="list-style-type: none"> <li>• Handling the drums/containers of waste materials</li> <li>• DPT Rigs. When lines break or rupture crews must be able to respond quickly.</li> </ul> <p>This section describes the procedures the TtNUS field personnel will employ upon the detection of a spill or leak for IDW storage.</p> <ul style="list-style-type: none"> <li>• Notify the SSHO or FOL immediately upon detection of a leak or spill. Initiate incidental response measures, remove non-essential personnel.</li> <li>• Employ the personal protective equipment (see below). Take immediate actions to stop the leak or spill by plugging or patching the container or raising the leak to the highest point in the vessel (for containers). Spread the absorbent material in the area of the spill, covering it completely.</li> <li>• Transfer the material to a new vessel; collect and containerize the absorbent material. Label the new container appropriately. Await analyses for treatment and disposal options.</li> <li>• Re-containerize spills, including 2-inch of top cover (if over soils) impacted by the spill. Await test results for treatment or disposal options.</li> <li>• Personal Protective Equipment               <ul style="list-style-type: none"> <li>- Nitrile outer gloves</li> <li>- Impermeable over-boots</li> <li>- Rain suits or aprons if there is a potential for soiling or saturating work clothes.</li> </ul> </li> </ul>			
<p><b>Hazard Monitoring Required:</b> Visual observation of work practices by the FOL and/or the SSHO to minimize potential physical hazards (i.e., improper lifting, unsecured loads, cutting practices, etc.).</p>	<p><b>Decontamination Procedures:</b> Not required, unless spill containment protocol is implemented. Then the following will apply</p> <ul style="list-style-type: none"> <li>• Once the spill is secured and all of the spill equipment has been through a soap and water wash and rinse.</li> <li>• Personnel will wash/rinse outer protective garment with soap and water.</li> <li>• Remove outer protective garments.</li> <li>• Wash hands and face.</li> </ul>	<p><b>Permits/Requirements:</b></p> <ul style="list-style-type: none"> <li>• Complete IDW Inventory List</li> </ul>	

ACTIVITY / PHASE	POTENTIAL HAZARDS	RECOMMENDED ACTIONS / CONTROLS																																																													
<p><b>PPE Required</b></p> <table border="0"> <tr> <td>Hard-hat.....</td> <td><input type="checkbox"/> Yes</td> <td><input type="checkbox"/> No</td> <td>Hearing Protection (plugs/muffs)....</td> <td><input type="checkbox"/> Yes</td> <td><input type="checkbox"/> No</td> </tr> <tr> <td>Safety Glasses .....</td> <td><input type="checkbox"/> Yes</td> <td><input type="checkbox"/> No</td> <td>Safety belt/harness.....</td> <td><input type="checkbox"/> Yes</td> <td><input checked="" type="checkbox"/> No</td> </tr> <tr> <td>Chemical/splash goggles.....</td> <td><input type="checkbox"/> Yes</td> <td><input checked="" type="checkbox"/> No</td> <td>Radio/Cellular Phone.....</td> <td><input type="checkbox"/> Yes</td> <td><input type="checkbox"/> No</td> </tr> <tr> <td>Splash Shield.....</td> <td><input type="checkbox"/> Yes</td> <td><input checked="" type="checkbox"/> No</td> <td>Barricades .....</td> <td><input checked="" type="checkbox"/> Yes</td> <td><input type="checkbox"/> No</td> </tr> <tr> <td>Splash suits/coveralls .....</td> <td><input type="checkbox"/> Yes</td> <td><input type="checkbox"/> No</td> <td>Gloves (Type – see note) .....</td> <td><input checked="" type="checkbox"/> Yes</td> <td><input type="checkbox"/> No</td> </tr> <tr> <td>Impermeable apron .....</td> <td><input type="checkbox"/> Yes</td> <td><input type="checkbox"/> No</td> <td>Work/rest regimen .....</td> <td><input type="checkbox"/> Yes</td> <td><input checked="" type="checkbox"/> No</td> </tr> <tr> <td>Steel toe Work shoes or boots</td> <td><input checked="" type="checkbox"/> Yes</td> <td><input type="checkbox"/> No</td> <td>Chemical Resistant Boot Covers....</td> <td><input type="checkbox"/> Yes</td> <td><input type="checkbox"/> No</td> </tr> <tr> <td>High Visibility vest.....</td> <td><input type="checkbox"/> Yes</td> <td><input type="checkbox"/> No</td> <td>Tape up/use insect repellent .....</td> <td><input type="checkbox"/> Yes</td> <td><input type="checkbox"/> No</td> </tr> <tr> <td>First Aid Kit .....</td> <td><input checked="" type="checkbox"/> Yes</td> <td><input type="checkbox"/> No</td> <td>Fire Extinguisher.....</td> <td><input checked="" type="checkbox"/> Yes</td> <td><input type="checkbox"/> No</td> </tr> <tr> <td>Eyewash .....</td> <td><input type="checkbox"/> Yes</td> <td><input type="checkbox"/> No</td> <td>Other (see below) .....</td> <td><input checked="" type="checkbox"/> Yes</td> <td><input type="checkbox"/> No</td> </tr> </table> <p>Modifications/Exceptions: Other: <u>High Visibility Vests for high traffic areas; Leather or cotton work gloves for handling containers.</u></p>				Hard-hat.....	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Hearing Protection (plugs/muffs)....	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Safety Glasses .....	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Safety belt/harness.....	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Chemical/splash goggles.....	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Radio/Cellular Phone.....	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Splash Shield.....	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Barricades .....	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Splash suits/coveralls .....	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Gloves (Type – see note) .....	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Impermeable apron .....	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Work/rest regimen .....	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Steel toe Work shoes or boots	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Chemical Resistant Boot Covers....	<input type="checkbox"/> Yes	<input type="checkbox"/> No	High Visibility vest.....	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Tape up/use insect repellent .....	<input type="checkbox"/> Yes	<input type="checkbox"/> No	First Aid Kit .....	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Fire Extinguisher.....	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Eyewash .....	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Other (see below) .....	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
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<p><b>Training Required</b></p> <ul style="list-style-type: none"> <li>- 29 CFR 1910.120 (e) Site Specific Training (see Section 2.0 of the HSGM, Attachment 2-2).</li> <li>- Safe Work Permit Review/Tailgate Meeting Attendance</li> </ul> <p><b>Medical Clearance/Surveillance Required</b></p> <ul style="list-style-type: none"> <li>- Completed a Medical Data Sheet (See Section 3, Figure 3-6 of the HSGM for blank forms)</li> </ul>	<p><b>Emergency Equipment</b></p> <ul style="list-style-type: none"> <li>- First Aid Kit</li> <li>- Fire Extinguisher</li> <li>- Map to Hospital and Emergency Reference (Figure 7-1 and Table 7-1) stored in the First Aid Kit</li> <li>- Spill Kit (oil dry, wood shavings, or other absorbent materials, shovels, brooms, oil absorbent pads)</li> </ul>	<p><b>Health and Safety Supporting Program Requirements</b></p> <p>None required.</p>																																																													

**FIGURE 6-1**  
**INVESTIGATIVE DERIVED WASTE**  
**DRUM/CONTAINER INVENTORY LOG**

*This attachment is to be completed as investigative derived waste is generated. An updated inventory should be provided to your Point of Contact at the end of each 10-day shift.*

Drum/ Container Number #	Drum/ Container Type	Media (Contents)	LOCATION (SWMU AND WELL #, ETC.)	ESTIMATED VOLUME	Date Filled	COMMENTS
1	5-Gallon Bucket 55-Gallon Drum (UN1A2)	Soil Cutting Purge/Development Water Decontamination Wash Waters		( )- Gallons	/ /	
2				( )- Gallons	/ /	
3				( )- Gallons	/ /	
4				( )- Gallons	/ /	

FIELD OPERATIONS LEADER: \_\_\_\_\_ PHONE NUMBER: \_\_\_\_\_

NAVSTA MAYPORT FIELD POINT OF CONTACT: \_\_\_\_\_ PHONE NUMBER: \_\_\_\_\_

## 7.0 EMERGENCY ACTION PLAN

### 7.1 INTRODUCTION

This section of the HASP has been developed as part of a planning effort to direct and guide field personnel in the event of an emergency. The first measure in accomplishing this objective is to define what is (and what is not) an emergency.

**An emergency as defined in 29 CFR 1910.120 is:**

*An occurrence or condition that can or has resulted in an uncontrolled release of a hazardous substance or potential safety hazard (i.e., fire, explosion, and chemical exposure) associated with that release.*

**Incidental releases are not emergencies.** An incidental release as defined in 29 CFR 1910.120 is:

*The releases of a hazardous substance that can be absorbed, neutralized, or otherwise controlled and will not result in potential safety hazard (i.e., fire, explosion, chemical exposure) are not considered emergency responses.*

Based on the above definitions, TtNUS will, through necessary services, provide initial response measures for incidents such as:

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

Incidents and conditions above this level of participation are and will be considered emergencies. These events are considered beyond the capabilities of field personnel and available resources to provide emergency response safely. Therefore, the emergency response agencies listed in this plan are capable of providing the most effective response and will be designated as the primary responders in the event of an emergency. These agencies are located within a reasonable distance (within 5 minutes) from the area of site operations, which ensures adequate emergency response time.

This Emergency Action Plan conforms to the requirements of 29 CFR 1910.38(a), as allowed in 29 CFR 1910.120(l)(1)(ii). The FOL and/or the SSHO shall serve as the Emergency Action Plan

administrators. All inquiries regarding the implementation of this Emergency Action Plan should be directed to them for resolution.

## **7.2 PRE-EMERGENCY PLANNING**

Through the initial hazard/risk assessment effort, injury due to the following are those condition that could result in a potential life threatening injury and emergency associated with planned activities:

- Equipment failure/Improper operation/Failure to employ selected PPE
- Utility Strike/Damage
- Flightline Hazards
- Natural Hazards

The following actions will be employed to minimize or eliminate these conditions that could lead to a potential injury.

### **7.2.1 Equipment Failure/Failure to use selected PPE**

The FOL and/or the SSHO will:

- Conduct equipment inspections to ensure all equipment employed is in satisfactory condition. An Equipment Inspection Checklist (for the DPT Rig) has been provided in the Safe Work Packet.
- Ensure operators are knowledgeable in the operation of selected equipment.
- Ensure strict adherence to site control measures including keeping non-essential personnel out of the exclusion zone.
- Ensure personnel are instructed regarding the PPE to be employed for each task. The FOL and/or the SSHO will enforce use and application.

### **7.2.2 Utility Strike/Damage**

To prevent a utility strike and possible damage, the following measures will be taken:

- Insure a Utility Clearance Ticket and Excavation Permit Request have been completed for all areas of subsurface investigation and they are/have remained current.
- Walk the area to be investigated, look for surface monuments that may indicate the existence of subsurface utilities.

- Ensure If the location of the soil boring is within 18-inches plus the diameter of a marked utility, that the edges of the utility are confirmed through hand augering to ensure its location prior to using mechanized equipment.

If a utility is damaged contact:

Purifoy, Wayne CIV NAVSTA MAYPORT FL, N4  
carey.purifoy@navy.mil  
(904) 270-5207 ext 128

Secure the area until Utility Trouble Shooting arrives.

### **7.2.3      Flightline Hazards**

It is recognized that working on the flightline is a dangerous location. Following tenants of Ramp Training and direction provided by the Tower will minimize that potential. It is also recognized that emergencies on the flightline can be caused by FOD. To control this hazard, the following control measures will be employed:

- FOD Recognition and Training is critical in deterring potential emergencies within flightline areas of operation. To minimize these hazards the FOL
  - Will restrict non-essential items into FOD sensitive areas. Personnel will remove or secure items on their vehicle or on their persons to avoid creating FOD.
  - The FOL will strictly enforce FOD requirements during operations within FOD sensitive areas. Prior to releasing the area, the FOL and the field crew will account for all equipment as well as walk the area to insure no FOD is left behind. This will be critical during abandonment activities as small chunks of concrete are FOD and must be diligently removed.

### **7.2.4      Natural Hazards**

Natural hazards that exist that could result in an emergency include the following:

- Snake Bite
- Alligators
- Inclement Weather – Electrical storms

#### **7.2.4.1 Snakes/Alligators**

The FOL and/or the SSHO will

- Instruct all personnel in avoidance of snakes and alligators as described in Section 4.0 of the HSGM.
- Survey the areas to be sampled if these areas are along water ways and remote locations.
- Determine if there are signs along the sediment sampling area [mounded nests, slides (alligators entering the water), or their presence within the sampling area.

In addition, the following measures will be incorporated into project planning and execution by the SSHO:

- Establish and maintain information at the project staging area (Support Zone) for easy access in the event of an emergency. This information includes the following:
  - On-site personnel medical records (medical data sheets).
  - MSDSs for all chemicals brought on site.
  - A logbook identifying personnel on-site each day.
  - Emergency notification phone numbers in all site vehicles
- Educate site workers to the hazards and control measures associated with planned activities at the site, and providing early recognition and prevention, where possible.

### **7.3 EMERGENCY RECOGNITION AND PREVENTION**

The primary focus of this section is the ability to recognize and control factors, which could contribute to emergency situations/conditions. The FOL and/or SSHO will preview all site work location prior to committing personnel or resources as follows:

- Identify, remove, and/or barricade physical hazards within the estimated work area. Ensure that approach paths into the work area have established access and control points to ensure pedestrian traffic and workers are not impacted by vehicle traffic.
- Provide the necessary equipment to control potential emergencies (i.e., first aid kits, safety cans for flammable liquid storage, spill containment equipment, PPE, and emergency equipment such as portable fire extinguishers).
- Evaluate operations to ensure that necessary measures are taken to control and/or minimize the impact of emergency situations/conditions.

The field crew shall:

- At the FOL and/or the SSHO's direction remove, or barricade physical hazards within the estimated work area identified by the FOL and/or the SSHO.
- Follow the guidelines for control of emergency conditions.
- Report any potential emergency situation(s) to the FOL and/or the SSHO.

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

Upon activation of the on-site emergency alarm system the following actions will occur:

- Site operations will cease. There are no critical operations which would have to be staffed during an emergency.
- Field personnel will proceed to the designated assembly point. Site personnel will remain at this location until directed otherwise by the FOL and/or the SSHO. This will be the identified safe place of refuge. From here, emergency responders will be directed.

##### **7.4.1 Critical Operations**

There are no critical operations that will be associated with this scope of work that would require personnel to man during an emergency. All personnel will evacuate if so directed.

#### **7.5 EMERGENCY MEDICAL TREATMENT**

TtNUS and subcontractor personnel are permitted to provide treatment to the level of their first-aid training. It should also be noted all first-aid administered is based on voluntary provision.

Emergency medical treatment will be initiated under the following guarded restrictions:

- Notify the FOL and/or the SSHO of the incident.
- Take the necessary precautions to prevent direct contamination with the injured person's body fluids. Recommended practices include, but not limited to the following:
  - Use surgeon-style gloves when handling cuts, abrasions, bites, punctures, etc. or any part of the injured person. The use of safety glasses and surgeons masks maybe necessary, if there is the potential for uncontrolled spread of body fluids. In all situations where first aid is provided immediately notify the PHSO or the HSM.

- Should Cardio-Pulmonary Resuscitation (CPR) be required, use a CPR Micro-Shield mouthpiece when administering CPR to prevent contact with the injured party's body fluids.

In order to engage these protective measures, the FOL shall ensure that these items are part of their first-aid kit.

The provision of having at least two members of the Field Team First-Aid/CPR trained will be at the discretion of the TOM.

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

As TtNUS personnel will usually be working in close proximity to each other, hand signals and voice commands will comprise the mechanisms to alert site personnel of an emergency.

If an incident occurs, site personnel will initiate the following procedures:

- Initiate the evacuation via hand signals, voice commands, and line-of-site communication.
- Evacuate non-essential personnel.
- Initiate initial response procedures.
- Describe to the FOL (who will serve as the Incident Commander) what has occurred in as much detail as possible.

In the event that site personnel cannot control the incident through offensive and/or defensive measures, the FOL and/or the SSHO will enact emergency notification procedures to secure additional outside assistance in the following manner:

- Contact appropriate agency to report the incident (see Table 7-1). 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.
- Follow the Instruction provided in Section 1.0 of the HSGM for the Medical Management of Injuries and Illnesses.

## **7.7 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 7-1 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 7-1  
EMERGENCY REFERENCE  
NAVAL STATION  
MAYPORT, FLORIDA**

<b>AGENCY</b>	<b>TELEPHONE</b>
<b>EMERGENCY</b>	<b>911</b>
Fire Department	(904) 270-5333
Base Security	(904) 270-5583 or 5584
Base Medical Clinic (For life threatening emergencies only)	(904) 270-5444
Memorial Health Care Center (for other emergencies)	(904) 858-7500
Base Safety Department	(904) 270-5218
NAVSTA Mayport Point of Contact, Diane Racine	(904) 270-6730
Public Works Trouble Desk (for problems with utilities)	(904) 542-2122
National Response Center	(800) 424-8802
Chemtrec	(800) 424-9300
Poison Control Center	(800) 222-1222
Task Order Manager, Shina Ballard	(904) 730-4669 x222
Health and Safety Manager, Matthew M. Soltis, CIH, CSP	(412) 921-8912
Project Health and Safety Officer, Tom Dickson, CSP	(412) 921-8457

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.

## 7.8 EMERGENCY ROUTE TO HOSPITAL

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

Branch Medical Clinic  
NAVSTA Mayport  
Mayport, FL 32228

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

For non-emergency care services:

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

Memorial Health Care Center will be used for medical care beyond basic first aid treatment. Figure 7-1 is a map to Memorial Health Care Center. Directions to the Center: Exit base, take Mayport Road (A1A) to Atlantic Blvd.

Take a right onto Atlantic Blvd. across the Intercoastal Waterway go 10 miles. Turn left on University Blvd and go 1.8 miles. The hospital is on the left.

**FIGURE 7-1, ROUTE TO MEMORIAL HEALTH CARE CENTER**



**ATTACHMENT A**

**HEARING CONSERVATION PROGRAM**

## HEARING CONSERVATION PROGRAM

The following information pertaining to the use of hearing protection is to be completed by the Site Safety and Health Officer (SSHO), their duly appointed representative, or the Field Operations Leader (FOL). This work site portion of the Hearing Conservation Program (HCP) will be completed only if hearing protection is to be used in the completion of the assigned tasks as identified per the scope of work, in the work plan, the health and safety plan, bid specifications, or as determined through hazard assessment of the tasks and potential hazards which may be involved.

**Attention:** It is currently not anticipated that Sound Level Measurements or Noise Dosimetry will be required in the course of this work. It is however required that we record the types of hearing protection employed by site personnel. Should it be determined that additional exposure potential data is required the Noise Dosimetry and Sound Level Measurement Logs will be used for that purpose as directed by the PHSO.

Upon completion of the site-specific elements of this HCP, the Sound Level Measurement Log(s) and/or the Noise Dosimetry Log(s) should be copied and attached to the Safe Work Permit(s) for each activity directed by the HASP to be monitored. Permits and logs should then be forwarded to the Project Health and Safety Officer (PHSO) for evaluation.

### Personnel Responsible For Program Completion

The following persons are available to provide assistance in all elements of this program including question/conflict resolution and modification variances. These persons exercise the primary responsibility for the implementation of this site-specific program.

I)

**SSHO (HCP On-site Administrator):** TBD **Phone #:** \_\_\_\_\_

**FOL(HCP On-site Administrator):** \_\_\_\_\_ **Phone #:** \_\_\_\_\_

**PHSO:** Thomas M. Dickson, CSP **Phone #:** (412) 720-3006

**HSM:** Matthew M. Soltis, CIH, CSP **Phone #:** (412) 921-8912

### Personnel Who (by Way of Assignment) Will Wear Hearing Protection

The following list represents TtNUS or subcontractor personnel working under the provisions of this HCP. The persons listed below are included in this site-specific HCP and are required to wear hearing protection when performing tasks producing excessive noise.

II)

Personnel	Make/Model of Hearing Protective Devices to be used	Hearing Protection Noise Reduction Rating (NRR #)	Activity	Anticipated Noise Levels
			Excavation	82-87dBA

III) **Noise Evaluation Technique or Quantitative Noise Evaluations**

Noise level monitoring performed on-site will be done to quantify noise levels generated during certain operations. Documentation of these measurements will be performed using either the Sound Level Measurement Log or the Noise Dosimetry Log provided in Figure 1 and Figure 2, respectively.

**The Sound Level Monitoring**

Sound level measurements can be used in establishing noise levels for persons working within the exclusion zone. Sound level monitoring will be performed using a Type II Sound Level Meter (SLM) set on the A-Weighted scale on the SLOW response setting. This type of SLM survey is necessary when

- The general rule of thumb for noise levels is exceeded,
- In order to determine if hearing conservation is an issue,
- To set the boundaries for where hearing protection will be required.

SLM surveys are also used to identify areas or operations where more specific noise exposure evaluations (using noise dosimetry) are appropriate.

**General Rule of Thumb for Determining That Noise Levels May Be Excessive**

*If noise levels are loud enough that you need to raise your voice in order to communicate with another person who is within two feet of you, then noise levels may be excessive. In this case, hearing conservation issues must be considered and hearing protection must be used until and unless sound level monitoring or noise dosimetry indicate that it is not necessary.*

**To perform a SLM survey,**

1. First make sure that the SLM is on the proper settings as noted above, and ensure that it is properly calibrated in accordance with the manufacturer's instructions.

2. Then, take **at least 3 random readings at each location** starting at the spot where the noise source is loudest and working your way away from the noise source, until you have readings that are below an average of 85 decibels on the A-weighted scale (dBA).
3. You should position the SLM so that it is pointing perpendicular to the noise source (do not point the microphone directly at the noise source. This can result in inaccurate readings).
4. "Random readings" means that you should hold the SLM in place and occasionally glance at the readout and record the reading that you see. You should not watch the readout and record the highest peak reading that you see.
5. Pay particular attention to taking readings at any employee or subcontractor employee typical work locations (such as at the controls of a drill rig, at the area where samples are taken, etc.).
6. Record your readings on a draft sketch of the work area (or on a floorplan if working inside of a building).
7. After you have taken enough readings to adequately characterize the work area, post calibrate the SLM and record the distance from the noise source where the average of the 3 readings was no more than 85 dBA (using Figure 1, page 17).
8. All areas inside of the 85 dBA boundary line are to be designated as requiring hearing protection, and this must be communicated to all members of the field team. This can be accomplished by placing appropriate signs at the boundary line, posting Figure 1 at the work area, and by reviewing Figure 1 with the field team as part of a daily tailgate meeting or Safe Work Permit review.

Also, areas where average sound levels are 85 dBA or greater should be brought to the attention of the PHSO for considerations for noise dosimetry.

The Sound Level Measurement Log will be used in the following circumstances

- Setting exclusion zone boundaries based on noise levels generated.
- Establishing noise contours surrounding operations.

### **Noise Dosimetry Log**

Noise dosimetry is used to accurately characterize the noise exposure that a person actually experiences during a working period. Dosimetry is much simpler to perform than a SLM survey, but it does involve the participation and cooperation of more people (namely, the workers who will wear the dosimeters). As with the use of any instrumentation, you need to closely follow the recommendations of the dosimeter manufacturer. Complete a Noise Dosimetry Log (Figure 2) for each dosimetry evaluation. In general, make sure that each dosimeter is properly calibrated before use, then attach the device to the worker so that the microphone is near the area of their head (i.e., at the collar). The worker should wear the device for the entire day, including breaks, and you should periodically check the device and record any

notations of activities performed during the shift, using the Worker Activity Log in Figure 3. At the end of the shift, remove the dosimeter from the worker and post-calibrate it.

### **Noise Monitoring Results - Notification**

The results of the noise monitoring (Sound Level Measurement Log and/or the Noise Dosimetry Log, Figure 2) will be copied and attached to the applicable Safe Work Permit(s). Copies of these documents will be forwarded to the PHSO for evaluation. In addition, a copy or the original shall be posted to inform personnel involved in the test as to the results. The SHSO will also provide a narrative of the results to all personnel and subcontractor personnel who wish further explanation.

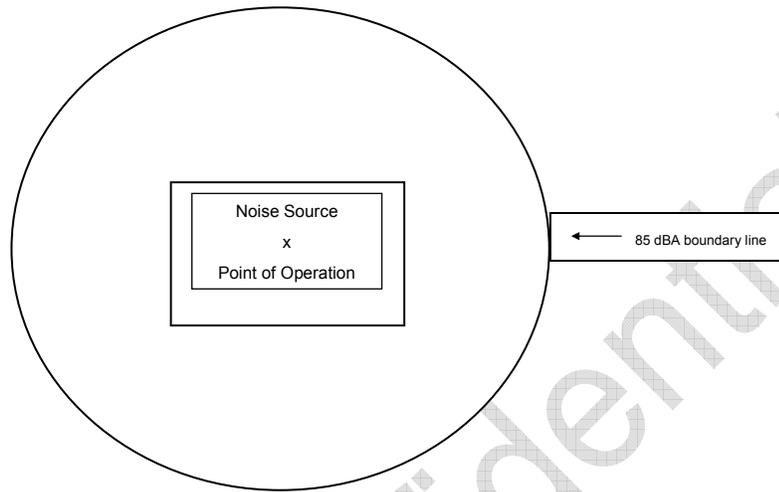
### **Calibration**

All instruments used for sound level measurements and noise dosimetry will require calibration prior to use. All calibration will proceed as per manufacturer's instructions provided with the instruments. Information required for calibration is provided on the Sound Level and Noise Dosimetry Logs. Pre-and post-calibrations must be performed and recorded for all noise evaluations performed.

### **III A) Sound Level Measurement Log**

The Sound Level Measurement Log (Figure 1) is to be used as a general record for sound level measurements recorded during operations. The diagram of the work area is to be completed by the SHSO and/or the FOL. Information should include operator/helpers positions, support functions (sample tables, etc.), and noise measurements along the contours provided below. When designating the 85 dBA boundary line, make the approximate distance from the noise source so that it is clearly evident to site personnel where hearing protection is needed. A better approach would be to put signs in place where noise levels are above 85 dBA that hearing protection is required in this area. The contours provided below are set at ten feet intervals from the center, if alternate distances are desired indicate as such on the contour boundaries.

**FIGURE 1  
SOUND LEVEL MEASUREMENT LOG**



Date of Survey	Location of Survey	Surveyed By
Sound Level Meter(Type)	Model #	Serial #
Calibration Date	Calibrated By	
Pre-Calibration Reading	Post-Calibration Reading	
Activity Being Conducted: _____		
Equipment Used: _____		
Duration of Activity: _____		
Hearing Protection Used? _____ Type: _____ NRR: _____		
Comments: _____		

**IIIB) Noise Dosimetry Log (Figure 2)**

This log will be employed when conducting Noise Dosimetry of operations or job classifications. This log contains the necessary information queues for worker information as well as calibration of the noise dosimeters to insure complete documentation. On the reverse side a running log of worker activity (Figure 3) is provided. Upon completion of this log, a copy should be made for the file on site, and the original sent to the PHSO for evaluation.

Company Confidential

Figure 2

**TETRA TECH NUS, INC.  
Noise Dosimetry Log**

DATE OF SAMPLE: \_\_\_\_\_

Individuals conducting the dosimetry initials below indicate that noise dosimeter(s) were calibrated, and the unit(s) test parameters verified, prior to sampling:

_____ 90 dB Criterion	_____ Pre-sample Calibration @ _____ dBA
_____ 5 dB Exchange	_____ Post-sample Calibration @ _____ dBA
_____ 80 dB Cut-off Threshold	_____ Calibrator: _____

Type of Noise Dosimeter employed: \_\_\_\_\_

Worker Sampled: \_\_\_\_\_ Dosimeter Identification No. \_\_\_\_\_

S.S. Number: \_\_\_\_\_

Job Classification: \_\_\_\_\_

Job/Task being performed: \_\_\_\_\_

Equipment/Tools used: \_\_\_\_\_

Type of Hearing Protection Employed: \_\_\_\_\_ Noise Reduction Rating: \_\_\_\_\_

Representative Exposure: \_\_\_\_\_

For: \_\_\_\_\_

Start-time: \_\_\_\_\_ : \_\_\_\_\_ Lmax. \_\_\_\_\_ Lavg. \_\_\_\_\_ Lpk. \_\_\_\_\_

Stop-time: \_\_\_\_\_ : \_\_\_\_\_

Elapsed-time: \_\_\_\_\_ : \_\_\_\_\_ Dose: \_\_\_\_\_ % Projected Dose: \_\_\_\_\_ %

Comments: \_\_\_\_\_

\_\_\_\_\_

Supervisor in Charge

SHSO and/or FOL

**ALSO COMPLETE WORKER ACTIVITY LOG ON (FIGURE 3)**

**FIGURE 3  
WORKER ACTIVITY LOG**

TEST HOUR	TASK(S)	*	LOCATION(S)
1			
2			
3			
4			
5			
6			
7			
8			

- **Part Number:** 1910
  - **Part Title:** Occupational Safety and Health Standards
  - **Subpart:** G
  - **Subpart Title:** Occupational Health and Environment Control
  - **Standard Number:** 1910.95
  - **Title:** Occupational noise exposure.
- 
- **Appendix:** A, B, C, D, E, F, G, H, I
- 

**1910.95(a)**

Protection against the effects of noise exposure shall be provided when the sound levels exceed those shown in Table G-16 when measured on the A scale of a standard sound level meter at slow response. When noise levels are determined by octave band analysis, the equivalent A-weighted sound level may be determined as follows:

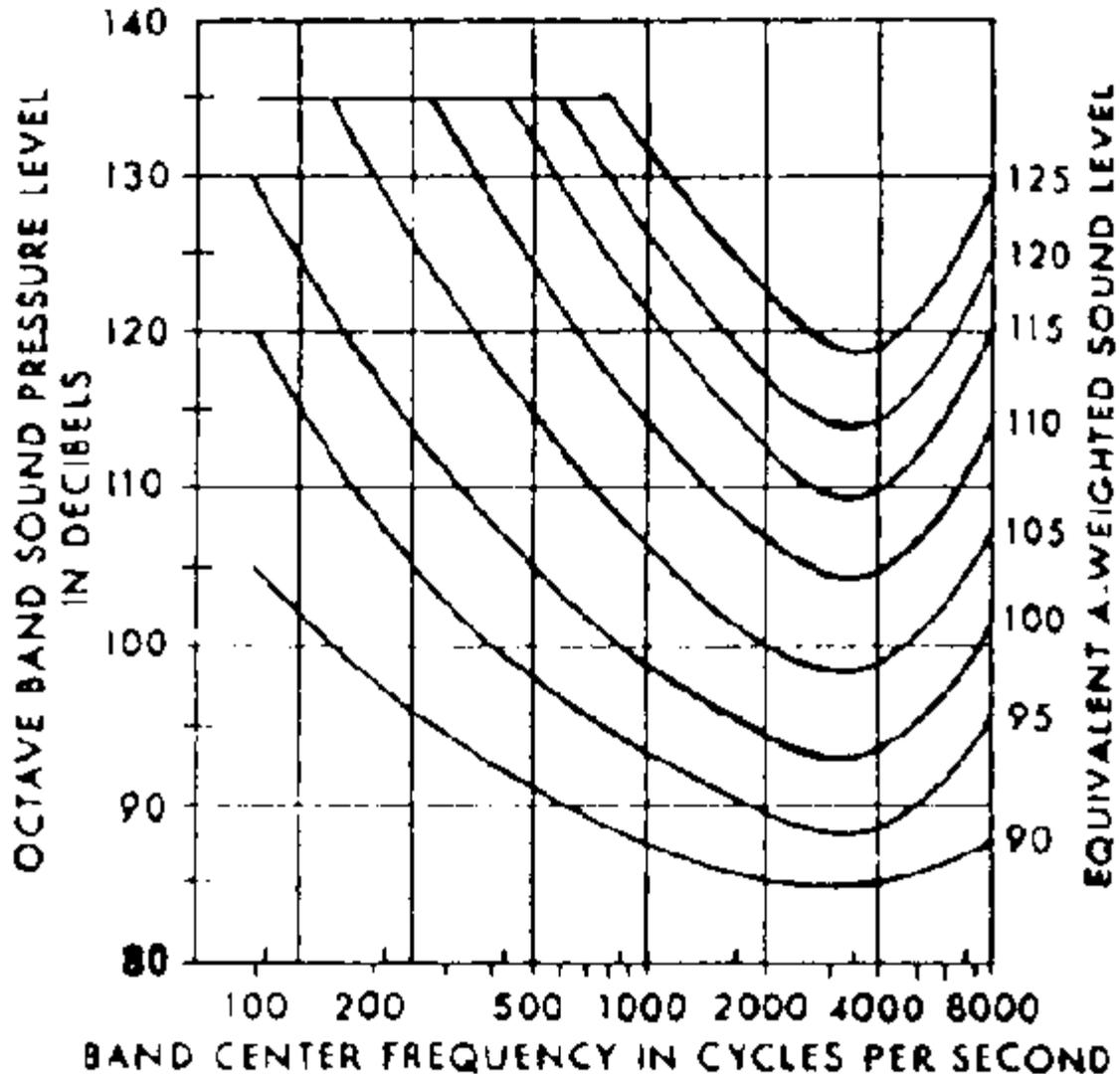


FIGURE G-9

Equivalent sound level contours. Octave band sound pressure levels may be converted to the equivalent A-weighted sound level by plotting them on this graph and noting the A-weighted sound level corresponding to the point of highest penetration into the sound level contours. This equivalent A-weighted sound level, which may differ from the actual A-weighted sound level of the noise, is used to determine exposure limits from Table 1.G-16.

[1910.95\(b\)\(1\)](#)

When employees are subjected to sound exceeding those listed in Table G-16, feasible administrative or engineering controls shall be utilized. If such controls fail to reduce sound

levels within the levels of Table G-16, personal protective equipment shall be provided and used to reduce sound levels within the levels of the table.

**1910.95(b)(2)**

If the variations in noise level involve maxima at intervals of 1 second or less, it is to be considered continuous.

TABLE G-16 - PERMISSIBLE NOISE EXPOSURES (1)

Duration per day, hours	Sound level dBA slow response
8.....	90
6.....	92
4.....	95
3.....	97
2.....	100
1 1/2 .....	102
1.....	105
1/2 .....	110
1/4 or less.....	115

Footnote(1) When the daily noise exposure is composed of two or more periods of noise exposure of different levels, their combined effect should be considered, rather than the individual effect of each. If the sum of the following fractions:  $C(1)/T(1) + C(2)/T(2) + C(n)/T(n)$  exceeds unity, then, the mixed exposure should be considered to exceed the limit value. Cn indicates the total time of exposure at a specified noise level, and Tn indicates the total time of exposure permitted at that level. Exposure to impulsive or impact noise should not exceed 140 dB peak sound pressure level.

**1910.95(c)**

"Hearing conservation program."

**1910.95(c)(1)**

The employer shall administer a continuing, effective hearing conservation program, as described in paragraphs (c) through (o) of this section, whenever employee noise exposures equal or exceed an 8-hour time-weighted average sound level (TWA) of 85 decibels measured on the A scale (slow response) or, equivalently, a dose of fifty percent. For purposes of the hearing conservation program, employee noise exposures shall be computed in accordance with appendix A and Table G-16a, and without regard to any attenuation provided by the use of personal protective equipment.

**1910.95(c)(2)**

For purposes of paragraphs (c) through (n) of this section, an 8-hour time-weighted average of 85 decibels or a dose of fifty percent shall also be referred to as the action level.

**1910.95(d)**

"Monitoring."

**1910.95(d)(1)**

When information indicates that any employee's exposure may equal or exceed an 8-hour time-weighted average of 85 decibels, the employer shall develop and implement a monitoring program.

**1910.95(d)(1)(i)**

The sampling strategy shall be designed to identify employees for inclusion in the hearing conservation program and to enable the proper selection of hearing protectors.

**1910.95(d)(1)(ii)**

Where circumstances such as high worker mobility, significant variations in sound level, or a significant component of impulse noise make area monitoring generally inappropriate, the employer shall use representative personal sampling to comply with the monitoring requirements of this paragraph unless the employer can show that area sampling produces equivalent results.

**1910.95(d)(2)(i)**

All continuous, intermittent and impulsive sound levels from 80 decibels to 130 decibels shall be integrated into the noise measurements.

**1910.95(d)(2)(ii)**

Instruments used to measure employee noise exposure shall be calibrated to ensure measurement accuracy.

**1910.95(d)(3)**

Monitoring shall be repeated whenever a change in production, process, equipment or controls increases noise exposures to the extent that:

**1910.95(d)(3)(i)**

Additional employees may be exposed at or above the action level; or

**1910.95(d)(3)(ii)**

The attenuation provided by hearing protectors being used by employees may be rendered inadequate to meet the requirements of paragraph (j) of this section.

**1910.95(e)**

"Employee notification." The employer shall notify each employee exposed at or above an 8-hour time-weighted average of 85 decibels of the results of the monitoring.

**1910.95(f)**

"Observation of monitoring." The employer shall provide affected employees or their representatives with an opportunity to observe any noise measurements conducted pursuant to this section.

**1910.95(g)**

"Audiometric testing program."

**1910.95(g)(1)**

The employer shall establish and maintain an audiometric testing program as provided in this paragraph by making audiometric testing available to all employees whose exposures equal or exceed an 8-hour time-weighted average of 85 decibels.

**1910.95(g)(2)**

The program shall be provided at no cost to employees.

**1910.95(g)(3)**

Audiometric tests shall be performed by a licensed or certified audiologist, otolaryngologist, or other physician, or by a technician who is certified by the Council of Accreditation in Occupational Hearing Conservation, or who has satisfactorily demonstrated competence in administering audiometric examinations, obtaining valid audiograms, and properly using, maintaining and checking calibration and proper functioning of the audiometers being used. A technician who operates microprocessor audiometers does not need to be certified. A technician who performs audiometric tests must be responsible to an audiologist, otolaryngologist or physician.

**1910.95(g)(4)**

All audiograms obtained pursuant to this section shall meet the requirements of Appendix C: "Audiometric Measuring Instruments."

**1910.95(g)(5)**

"Baseline audiogram."

**1910.95(g)(5)(i)**

Within 6 months of an employee's first exposure at or above the action level, the employer shall establish a valid baseline audiogram against which subsequent audiograms can be compared.

**1910.95(g)(5)(ii)**

"Mobile test van exception." Where mobile test vans are used to meet the audiometric testing obligation, the employer shall obtain a valid baseline audiogram within 1 year of an employee's first exposure at or above the action level. Where baseline audiograms are obtained more than 6 months after the employee's first exposure at or above the action level, employees shall wear hearing protectors for any period exceeding six months after first exposure until the baseline audiogram is obtained.

**1910.95(g)(5)(iii)**

Testing to establish a baseline audiogram shall be preceded by at least 14 hours without exposure to workplace noise. Hearing protectors may be used as a substitute for the requirement that baseline audiograms be preceded by 14 hours without exposure to workplace noise.

**1910.95(g)(5)(iv)**

The employer shall notify employees of the need to avoid high levels of non-occupational noise exposure during the 14-hour period immediately preceding the audiometric examination.

**1910.95(g)(6)**

"Annual audiogram." At least annually after obtaining the baseline audiogram, the employer shall obtain a new audiogram for each employee exposed at or above an 8-hour time-weighted average of 85 decibels.

**1910.95(g)(7)**

"Evaluation of audiogram."

**1910.95(g)(7)(i)**

Each employee's annual audiogram shall be compared to that employee's baseline audiogram to determine if the audiogram is valid and if a standard threshold shift as defined in paragraph (g)(10) of this section has occurred. This comparison may be done by a technician.

**1910.95(g)(7)(ii)**

If the annual audiogram shows that an employee has suffered a standard threshold shift, the employer may obtain a retest within 30 days and consider the results of the retest as the annual audiogram.

**1910.95(g)(7)(iii)**

The audiologist, otolaryngologist, or physician shall review problem audiograms and shall determine whether there is a need for further evaluation. The employer shall provide to the person performing this evaluation the following information:

**1910.95(g)(7)(iii)(A)**

A copy of the requirements for hearing conservation as set forth in paragraphs (c) through (n) of this section;

**1910.95(g)(7)(iii)(B)**

The baseline audiogram and most recent audiogram of the employee to be evaluated;

**1910.95(g)(7)(iii)(C)**

Measurements of background sound pressure levels in the audiometric test room as required in Appendix D: Audiometric Test Rooms.

**1910.95(g)(7)(iii)(D)**

Records of audiometer calibrations required by paragraph (h)(5) of this section.

**1910.95(g)(8)**

"Follow-up procedures."

**1910.95(g)(8)(i)**

If a comparison of the annual audiogram to the baseline audiogram indicates a standard threshold shift as defined in paragraph (g)(10) of this section has occurred, the employee shall be informed of this fact in writing, within 21 days of the determination.

**1910.95(g)(8)(ii)**

Unless a physician determines that the standard threshold shift is not work related or aggravated by occupational noise exposure, the employer shall ensure that the following steps are taken when a standard threshold shift occurs:

**1910.95(g)(8)(ii)(A)**

Employees not using hearing protectors shall be fitted with hearing protectors, trained in their use and care, and required to use them.

**1910.95(g)(8)(ii)(B)**

Employees already using hearing protectors shall be refitted and retrained in the use of

hearing protectors and provided with hearing protectors offering greater attenuation if necessary.

**1910.95(g)(8)(ii)(C)**

The employee shall be referred for a clinical audiological evaluation or an otological examination, as appropriate, if additional testing is necessary or if the employer suspects that a medical pathology of the ear is caused or aggravated by the wearing of hearing protectors.

**1910.95(g)(8)(ii)(D)**

The employee is informed of the need for an otological examination if a medical pathology of the ear that is unrelated to the use of hearing protectors is suspected.

**1910.95(g)(8)(iii)**

If subsequent audiometric testing of an employee whose exposure to noise is less than an 8-hour TWA of 90 decibels indicates that a standard threshold shift is not persistent, the employer:

**1910.95(g)(8)(iii)(A)**

Shall inform the employee of the new audiometric interpretation; and

**1910.95(g)(8)(iii)(B)**

May discontinue the required use of hearing protectors for that employee.

**1910.95(g)(9)**

"Revised baseline." An annual audiogram may be substituted for the baseline audiogram when, in the judgment of the audiologist, otolaryngologist or physician who is evaluating the audiogram:

**1910.95(g)(9)(i)**

The standard threshold shift revealed by the audiogram is persistent; or

**1910.95(g)(9)(ii)**

The hearing threshold shown in the annual audiogram indicates significant improvement over the baseline audiogram.

**1910.95(g)(10)**

"Standard threshold shift."

**1910.95(g)(10)(i)**

As used in this section, a standard threshold shift is a change in hearing threshold relative to the baseline audiogram of an average of 10 dB or more at 2000, 3000, and 4000 Hz in either ear.

**1910.95(g)(10)(ii)**

In determining whether a standard threshold shift has occurred, allowance may be made for the contribution of aging (presbycusis) to the change in hearing level by correcting the annual audiogram according to the procedure described in Appendix F: "Calculation and Application of Age Correction to Audiograms."

**1910.95(h)**

"Audiometric test requirements."

**1910.95(h)(1)**

Audiometric tests shall be pure tone, air conduction, hearing threshold examinations, with test frequencies including as a minimum 500, 1000, 2000, 3000, 4000, and 6000 Hz. Tests at each frequency shall be taken separately for each ear.

**1910.95(h)(2)**

Audiometric tests shall be conducted with audiometers (including microprocessor audiometers) that meet the specifications of, and are maintained and used in accordance with, American National Standard Specification for Audiometers, S3.6-1969, which is incorporated by reference as specified in Sec. 1910.6.

**1910.95(h)(3)**

Pulsed-tone and self-recording audiometers, if used, shall meet the requirements specified in Appendix C: "Audiometric Measuring Instruments."

**1910.95(h)(4)**

Audiometric examinations shall be administered in a room meeting the requirements listed in Appendix D: "Audiometric Test Rooms."

**1910.95(h)(5)**

"Audiometer calibration."

**1910.95(h)(5)(i)**

The functional operation of the audiometer shall be checked before each day's use by testing a person with known, stable hearing thresholds, and by listening to the audiometer's output to make sure that the output is free from distorted or unwanted sounds. Deviations of 10 decibels or greater require an acoustic calibration.

**1910.95(h)(5)(ii)**

Audiometer calibration shall be checked acoustically at least annually in accordance with Appendix E: "Acoustic Calibration of Audiometers." Test frequencies below 500 Hz and above 6000 Hz may be omitted from this check. Deviations of 15 decibels or greater require an exhaustive calibration.

**1910.95(h)(5)(iii)**

An exhaustive calibration shall be performed at least every two years in accordance with sections 4.1.2; 4.1.3.; 4.1.4.3; 4.2; 4.4.1; 4.4.2; 4.4.3; and 4.5 of the American National Standard Specification for Audiometers, S3.6-1969. Test frequencies below 500 Hz and above 6000 Hz may be omitted from this calibration.

**1910.95(i)**

"Hearing protectors."

**1910.95(i)(1)**

Employers shall make hearing protectors available to all employees exposed to an 8-hour time-weighted average of 85 decibels or greater at no cost to the employees. Hearing protectors shall be replaced as necessary.

**1910.95(i)(2)**

Employers shall ensure that hearing protectors are worn:

**1910.95(i)(2)(i)**

By an employee who is required by paragraph (b)(1) of this section to wear personal protective equipment; and

**1910.95(i)(2)(ii)**

By any employee who is exposed to an 8-hour time-weighted average of 85 decibels or greater, and who:

**1910.95(i)(2)(ii)(A)**

Has not yet had a baseline audiogram established pursuant to paragraph (g)(5)(ii); or

**1910.95(i)(2)(ii)(B)**

Has experienced a standard threshold shift.

**1910.95(i)(3)**

Employees shall be given the opportunity to select their hearing protectors from a variety of suitable hearing protectors provided by the employer.

**1910.95(i)(4)**

The employer shall provide training in the use and care of all hearing protectors provided to employees.

**1910.95(i)(5)**

The employer shall ensure proper initial fitting and supervise the correct use of all hearing protectors.

**1910.95(j)**

"Hearing protector attenuation."

**1910.95(j)(1)**

The employer shall evaluate hearing protector attenuation for the specific noise environments in which the protector will be used. The employer shall use one of the evaluation methods described in Appendix B: "Methods for Estimating the Adequacy of Hearing Protection Attenuation."

**1910.95(j)(2)**

Hearing protectors must attenuate employee exposure at least to an 8-hour time-weighted average of 90 decibels as required by paragraph (b) of this section.

**1910.95(j)(3)**

For employees who have experienced a standard threshold shift, hearing protectors must attenuate employee exposure to an 8-hour time-weighted average of 85 decibels or below.

**1910.95(j)(4)**

The adequacy of hearing protector attenuation shall be re-evaluated whenever employee noise exposures increase to the extent that the hearing protectors provided may no longer provide adequate attenuation. The employer shall provide more effective hearing protectors where necessary.

**1910.95(k)**

"Training program."

**1910.95(k)(1)**

The employer shall institute a training program for all employees who are exposed to noise

at or above an 8-hour time-weighted average of 85 decibels, and shall ensure employee participation in such program.

**1910.95(k)(2)**

The training program shall be repeated annually for each employee included in the hearing conservation program. Information provided in the training program shall be updated to be consistent with changes in protective equipment and work processes.

**1910.95(k)(3)**

The employer shall ensure that each employee is informed of the following:

**1910.95(k)(3)(i)**

The effects of noise on hearing;

**1910.95(k)(3)(ii)**

The purpose of hearing protectors, the advantages, disadvantages, and attenuation of various types, and instructions on selection, fitting, use, and care; and

**1910.95(k)(3)(iii)**

The purpose of audiometric testing, and an explanation of the test procedures.

**1910.95(l)**

"Access to information and training materials."

**1910.95(l)(1)**

The employer shall make available to affected employees or their representatives copies of this standard and shall also post a copy in the workplace.

**1910.95(l)(2)**

The employer shall provide to affected employees any informational materials pertaining to the standard that are supplied to the employer by the Assistant Secretary.

**1910.95(l)(3)**

The employer shall provide, upon request, all materials related to the employer's training and education program pertaining to this standard to the Assistant Secretary and the Director.

**1910.95(m)**

"Recordkeeping" -

**1910.95(m)(1)**

"Exposure measurements." The employer shall maintain an accurate record of all employee exposure measurements required by paragraph (d) of this section.

**1910.95(m)(2)**

"Audiometric tests."

**1910.95(m)(2)(i)**

The employer shall retain all employee audiometric test records obtained pursuant to paragraph (g) of this section:

**1910.95(m)(2)(ii)**

This record shall include:

**1910.95(m)(2)(ii)(A)**

Name and job classification of the employee;

**1910.95(m)(2)(ii)(B)**

Date of the audiogram;

**1910.95(m)(2)(ii)(C)**

The examiner's name;

**1910.95(m)(2)(ii)(D)**

Date of the last acoustic or exhaustive calibration of the audiometer; and

**1910.95(m)(2)(ii)(E)**

Employee's most recent noise exposure assessment.

**1910.95(m)(2)(ii)(F)**

The employer shall maintain accurate records of the measurements of the background sound pressure levels in audiometric test rooms.

**1910.95(m)(3)**

"Record retention." The employer shall retain records required in this paragraph (m) for at least the following periods.

**1910.95(m)(3)(i)**

Noise exposure measurement records shall be retained for two years.

**1910.95(m)(3)(ii)**

Audiometric test records shall be retained for the duration of the affected employee's employment.

**1910.95(m)(4)**

"Access to records." All records required by this section shall be provided upon request to employees, former employees, representatives designated by the individual employee, and the Assistant Secretary. The provisions of 29 CFR 1910.1020 (a)-(e) and (g)-

**1910.95(m)(4)(i)**

apply to access to records under this section.

**1910.95(m)(5)**

"Transfer of records." If the employer ceases to do business, the employer shall transfer to the successor employer all records required to be maintained by this section, and the successor employer shall retain them for the remainder of the period prescribed in paragraph (m)(3) of this section.

**1910.95(n)**

"Appendices."

**1910.95(n)(1)**

Appendices A, B, C, D, and E to this section are incorporated as part of this section and the contents of these appendices are mandatory.

**1910.95(n)(2)**

Appendices F and G to this section are informational and are not intended to create any additional obligations not otherwise imposed or to detract from any existing obligations.

**1910.95(o)**

"Exemptions." Paragraphs (c) through (n) of this section shall not apply to employers engaged in oil and gas well drilling and servicing operations.

[39 FR 23502, June 27, 1974, as amended at 46 FR 4161, Jan. 16, 1981; 46 FR 62845, Dec. 29, 1981; 48 FR 9776, Mar. 8, 1983; 48 FR 29687, June 28, 1983; 54 FR 24333, June 7, 1989; 61 FR 5507, Feb. 13, 1996; 61 FR 9227, March 7, 1996; 71 FR 16672, April, 3, 2006]

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[!\[\]\(14dde7c8503b04c2e3c9d401d95977ef\_img.jpg\) Regulations \(Standards - 29 CFR\) - Table of Contents](#)

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