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HEALTH AND SAFETY PLAN FOR SEDIMENT SAMPLING ACTIVITIES AT LOWER
SUBBASE ZONE 4 AND OUTER PIER 1 REVISION 1 NSB NEW LONDON CT
12/1/2011
TETRA TECH

**Health and Safety Plan
for
Sediment Sampling Activities
Lower Subbase –
Zone 4 and Outer Pier 1**

**Naval Submarine Base - New London
Groton, Connecticut**



**Naval Facilities Engineering Command
Mid-Atlantic**

Contract Number N62470-08-D-1001

Contract Task Order WE34

**Revision 1
December 2011**

**HEALTH AND SAFETY PLAN
FOR
SEDIMENT SAMPLING ACTIVITIES
LOWER SUBBASE –
ZONE 4 AND OUTER PIER 1**

**NAVAL SUBMARINE BASE - NEW LONDON
GROTON, CONNECTICUT**

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

**Submitted to:
Naval Facilities Engineering Command
Mid-Atlantic
9742 Maryland Avenue
Norfolk, Virginia 23511-3095**

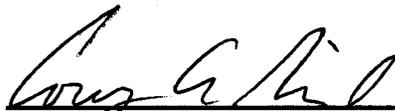
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**CONTRACT NUMBER N62470-08-D-1001
CONTRACT TASK ORDER WE34**

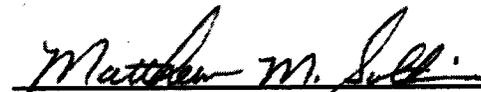
**REVISION 1
DECEMBER 2011**

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1.0 INTRODUCTION

Objective: The objective of this Health and Safety Plan (HASP) is to provide the safety and health requirements, practices and procedures for Tetra Tech NUS, Inc. (Tetra Tech) and subcontractor personnel participating in the Thames River sediment sampling within Zone 4 and Outer Pier 1 at the Naval Submarine Base - New London (NSB-NLON), located in Groton, Connecticut.

Compliance: This HASP is to be used in conjunction with the Tetra Tech Health and Safety Guidance Manual (HSGM). The HSGM provides additional detailed information pertaining to hazard recognition and control, and Tetra Tech standard operating procedures as well as Tetra Tech Safety and health program elements. Both documents must be present at the site to satisfy compliance requirements associated with OSHA 29 CFR 1910.120 and 1926.65.

Modification: This HASP supports proposed tasks and techniques associated with the scope of work as presented in Section 4.0. It has been developed using the latest available information regarding known or suspected chemical contaminants and potential physical hazards associated with the proposed work at the site. Should the proposed work site conditions and/or suspected hazards change, or if new information becomes available, this document will be modified. Changes to the HASP will be made at the direction of the Tetra Tech Project Manager (PM) and the Tetra Tech Health and Safety Manager (HSM).

1.1 AUTHORITY

This work is authorized under the Comprehensive Long - Term Environmental Action Navy (CLEAN) contract, administered through the U.S. Navy Mid Atlantic, Naval Facilities Engineering Command, Contract No. N62470-08-D-1001, Contract Task Order Number WE34.

1.2 KEY PROJECT PERSONNEL AND ORGANIZATION

This section defines responsibilities for site safety and health for Tetra Tech and subcontractor employees conducting the activities as defined in Section 4.0 of this HASP. Personnel assigned to participate in the field work have the primary responsibility for performing their work tasks in a manner that is consistent with the Tetra Tech Health and Safety Policy, the health and safety training that they have received, the contents of this HASP, and in an overall manner that protects their personal safety and health and that of their co-workers. The following persons are the primary point of contact and have the primary responsibility for observing and implementing this HASP and for overall on-site health and safety.

The Tetra Tech Project Manager (PM) is responsible for the overall direction of health and safety for this project including the following functions:

- Having signed approved documents onsite accessible to the employees and subcontractor personnel.
- Ensuring recordkeeping meets the objectives of the Work Plan and HASP including monitoring field documentation to ensure adequate health and safety practices and action items are properly employed and completed.
- Coordinating with project and facility personnel to implement necessary emergency action/response procedures, where necessary.
- Verifying corrective actions are implemented, where necessary.
- Ensure that project personnel have received training regarding the applicable contents of this HASP and work plan.
- Provide necessary funding for the appropriate monitoring, personal protective equipment, decontamination materials, and other project necessities.
- Ensuring when deficiencies are noted that the appropriate control measures are instituted and that this information is communicated to site personnel.
- Communicating lessons learned through the life cycle of the project.
- Serving as the primary interface between field operations and New London, Submarine Base Point of Contact (Ms. Tracey McKenzie or designee).

The Project Health and Safety Officer (PHSO) is responsible for developing this HASP in accordance with applicable OSHA regulations. Specific responsibilities include:

- Providing information on site contaminants chemical and physical hazards associated with the site.
- Establishing hazard monitoring and decontamination procedures.
- Assigning personal protective equipment based on task and potential hazards.

- Determining emergency action procedures and emergency contacts.
- Stipulating training and additional medical surveillance requirements based on contaminants in question.
- Providing standard work practices to minimize potential injuries and exposures associated with environmental remediation and monitoring activities.
- Modifying this HASP, as it becomes necessary based on direction from the PM and/or the HSM based on new information or modification of tasks to be performed.

The Tetra Tech Field Operations Leader (FOL) is responsible for implementation of the HASP with the assistance of an appointed Site Safety and Health Officer (SSO). The FOL responsibilities include:

- Providing site-specific information to personnel on the work plan
- Managing field activities
- Executing the work plan
- Enforcing safety procedures as applicable to the work plan.
- Evaluating work areas with the FOL prior to committing equipment and personnel
- Monitoring site operations to ensure safety and that the operational activities are in accordance with the Work Plan/HASP and the Marine Safety Plan which is included as Attachment I.

The SSO supports site activities by advising the FOL on the aspects of health and safety on-site. These duties may include:

- Coordinating the health and safety activities with the FOL.
- Selecting, ensuring field personnel employs, inspecting, and maintaining personal protective equipment.
- Establishing work zones and control points in areas of operation.

- Implementation of hazard monitoring program for onsite activities.
- Verification of training and medical clearance of onsite personnel as specified by the PHSO.
- Implementation of Hazard Communication, Respiratory Protection Programs, and other associated health and safety programs as they may apply to site activities as specified by the PHSO.
- Coordination of onsite activities with emergency services.
- Providing site-specific training regarding the contents of the HASP for onsite and visiting personnel.
- Investigating accidents and injuries (see Attachment II - Illness/Injury Procedure and Report Form and Total System requirements).
- Providing input to the PHSO regarding the need to modify, this HASP, or applicable health and safety-associated documents as per site-specific requirements.
- Observing field team members for symptoms of exposure or stress as well in determining if field personnel are employing engineering controls, PPE and associated safety equipment properly.
- Performing site surveys prior to committing personnel or resources
 - To identify hazards that may be presented to site personnel
 - To take measures to flag/identify, remove/mitigate, or barricade
 - To select entry and exit routes that will be established
 - To identify emergency evacuation routes and assembly points

Compliance with the requirements stipulated in this HASP is monitored by the SSO and coordinated through the PHSO and Tetra Tech HSM. Additional HSM duties may include:

- Overseeing the development and implementation of this HASP.
- Visiting the site as needed to audit the effectiveness of these documents;
- Making himself available for project emergencies;
- Evaluating occupational exposure monitoring/air sampling data and direct the adjustment of action levels as necessary;

- Serving as a quality control (QC) staff member; and
- Approving/signing this HASP, indicating reviewed and approved.
- Following up on information generated through audits/evaluations to ensure corrective measures have been completed and are affectively mitigating any deficient conditions.
- Evaluating the Tetra Tech Health and Safety Program based on information derived from audits, self-assessments, incidents and near misses to determine where improvements may be made.
- Serving as the arbitrator and final authority as it may pertain to dispute resolution regarding health and safety issues associated with this project.

Tetra Tech and subcontractor employees are required to follow elements as specified in the HASP and where identified sections of the HSGM to minimize the potential for injury as well as maintain compliance status. In addition, the Tetra Tech and subcontractor employees are responsible for

- Knowing that they are responsible for their own safety and health
- Realizing their actions or inactions in maintaining compliance can affect themselves and others
- Reporting hazardous conditions and situations to their supervisors.
- Following this HASP, and where applicable, the various program elements and standard operation procedures (SOPs) defined in the HSGM.
- Participating in health and safety for this project by providing constructive criticism at Tail Gate/Safety Meetings and various training sessions.

NOTE: In some cases, one person may be designated responsibilities for more than one position. For example, the FOL may also be responsible for SSO duties. This action will be performed only as credentials, experience, complexity of the tasks, and availability permits. This should be evaluated on a case-by-case basis by the PM and HSM.

1.3 STOP WORK AUTHORITY

ALL employees and subcontractor personnel are empowered, authorized, and responsible to STOP WORK at any time when an imminent and uncontrolled safety or health hazard is perceived. In a Stop Work event (immediately after the involved task has been shut down and the work area has been secured in a safe manner) the employee shall contact the Project Manager and the Health and Safety Manager. Through observations and communication, the parties involved shall then develop, communicate, and implement corrective actions necessary and appropriate to modify the task and to resume work.

1.4 SITE INFORMATION AND PERSONNEL ASSIGNMENTS

Site Name: Naval Submarine Base New London **Address:** Groton, Connecticut
Navy Point of Contact: Ms. Tracey McKenzie **Phone Number:** (860) 694-5649
Navy RPM: Mr. Dominic O'Connor **Phone Number:** (757) 341-2014

Purpose of Site Visit: Field tasks include sediment sampling located in the Thames River in the area designated as Zone 4 and Outer Pier 1.

Proposed Dates of Work: March 2012 to completion

Project Team:

Tetra Tech Personnel:	Discipline/Tasks Assigned:	Phone #
<u>Corey Rich, P.E.</u>	<u>Project Manager (PM)</u>	<u>(412) 921-8984</u>
<u>Matthew M. Soltis, CIH, CSP</u>	<u>CLEAN Health and Safety Manager (HSM)</u>	<u>(412) 921-8912</u>
<u>Thomas Dickson, CSP</u>	<u>Project Health and Safety Officer (PHSO)</u>	<u>(412) 921-8457</u>
<u>TBD</u>	<u>Field Operations Leader (FOL)</u>	<u>_____</u>
<u>TBD</u>	<u>Site Safety Officer (SSO)</u>	<u>_____</u>
<u>_____</u>	<u>_____</u>	<u>_____</u>
<u>_____</u>	<u>_____</u>	<u>_____</u>

Non-Tetra Tech Personnel	Affiliation/Discipline/Tasks Assigned	Phone#
<u>TBD</u>	<u>Marine Services</u>	<u>_____</u>
<u>_____</u>	<u>_____</u>	<u>_____</u>

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

Thomas Dickson, CSP

2.0 EMERGENCY ACTION PLAN

2.1 INTRODUCTION

This section has been developed as part of a planning effort to direct and guide field personnel in the event of an emergency. In the event of an emergency that cannot be handled by onsite personnel, site personnel will be evacuated to a safe place of refuge and the appropriate emergency response agencies will be notified. It has been determined that the majority of potential emergency situations would be better supported by outside emergency responders. Tetra Tech will only provide emergency support for events within the capabilities of site personnel. Workers who are ill or who have suffered a non-serious injury may be transported by site personnel to nearby medical facilities, provided such transport does not aggravate or further endanger the welfare of the injured/ill person. The emergency response agencies listed in this plan are capable of providing the most effective response, and as such, will be designated as the primary responders. These agencies are located within a reasonable distance from the area of operations, a factor which ensures adequate emergency response time. The Navy RPM Dominic O'Connor and Navy Point of Contact Tracey McKenzie will be notified if outside response agencies are contacted.

Tetra Tech personnel may participate in minor event response and emergency prevention activities 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

2.2 EMERGENCY PLANNING

Through the initial hazard/risk assessment effort, emergencies resulting from utility contact, fire, on water collisions, drowning hazards are the types of emergencies which could be encountered during site activities. To minimize or eliminate the potential for these emergency situations, pre-emergency planning activities will include the following (which are the responsibility of the SSO and/or the FOL):

- Utility clearances will be obtained through the Navy's dig permit for intrusive subsurface activities.
- Cable crossing are typically well marked (this will be verified through the utility locate and clearance process).

- Any motorized boat used on site will be equipped with a suitable fire extinguisher system and be supported by portable fire extinguishers immediately accessible (see emergency equipment requirements, Section 2.8).
- Navigation within Zone 4 and Outer Pier 1 will be coordinated through the Harbor Master to ensure teams do not inadvertently enter secured areas or those areas where active river traffic is being conducted.
- Sampling in these areas will be coordinated with the Harbor Master who will control the traffic.
- Lights, markers or similar devices will be used to signal other boats/ships of the anchor status (See Attachment I, Marine Safety Plan).
- Personnel will have at their immediate access a USCG approved Floatation Device properly sized should they inadvertently enter the water.
- A Type IV throwable floatation device with 90-feet of rope will be accessible to permit rescue operations (see Attachment I, Marine Safety Plan).

In addition, the FOL/SSO will

- Coordinate with the Harbor Response/Rescue personnel to ensure that Tetra Tech emergency action activities are compatible with existing emergency response procedures.
- Establish and maintain information at the project staging area (support zone) for easy access in the event of an emergency. This information will include the following:
 - Chemical Inventory (of chemicals used onsite), with Material Safety Data Sheets.
 - Onsite personnel medical records (Medical Data Sheets).
 - A log book identifying personnel onsite each day.
 - Hospital route maps with directions (these should also be placed in each site vehicle).
 - Emergency notification - phone numbers.
- The Tetra Tech FOL and/or SSO will serve as the Incident Commander during an incident response action or an emergency action until the response agencies arrive.

- Conduct tail gate safety meetings, and daily production meetings to educate site workers to the hazards and control measures associated with planned activities at the site, and providing early recognition and prevention, where possible.
- Provide the necessary equipment to safely accomplish identified tasks.

2.3 EMERGENCY RECOGNITION AND PREVENTION

The initial actions listed in this plan are intended to control the conditions that could lead to an incident or an emergency. These include:

- Use of Marine Safety Plan which describes measures to be used to ensure safe operation on the water.
- Safe Vessel Inspection to protect against injury or death due to faulty equipment.
- The vessel the operator will be qualified to operate the boat.
- Operations plan coordinated with the Harbor Master.
- Use of the skiff and throwable floatation devices to extract persons from the water.
- Training in the use of fire extinguishers
- Good housekeeping and proper use of PPE.
- Limiting the number of persons in the exclusion zone surrounding the Vibracore sampler and hoisting mechanism.
- Evaluating weather and environmental conditions along with ongoing operations to control conditions that could lead to an incident or an emergency.

Tasks to be performed at the site, potential hazards associated with those tasks and the recommended control methods are discussed in detail in Sections 5.0 and 6.0. Additionally, early recognition of hazards will be supported by daily site surveys to eliminate any situation predisposed to an emergency.

The FOL and/or the SSO will be responsible for performing surveys of work areas prior to initiating site operations and periodically while operations are being conducted. Survey findings are documented by

the FOL and/or the SSO in the Site Health and Safety logbook, however, site personnel will be responsible for reporting hazardous situations. Where potential hazards exist, Tetra Tech will initiate control measures to prevent adverse effects to human health and the environment.

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

2.4 EVACUATION ROUTES, PROCEDURES, AND PLACES OF REFUGE

Given the nature of the task, evacuation routes will be established for the boat and the sample team on shore. These locations will be conveyed as part of the Daily Briefing.

- The Harbor Master will identify areas within Zone 4 and Outer Pier 1 that are acceptable to come to shore in the event of an emergency.
- Shore Teams will also identify locations in which field personnel will move to obtain emergency assistance.
- These locations should reflect routes to be used for access and egress.
- These routes should consider the extraction of personnel in an emergency.

In the event of an incident, personnel will initiate initial response measures to control the incident from becoming an emergency. If this is unsuccessful, personnel will immediately stop activities, notify emergency response dispatch and report to the designated safe place of refuge unless doing so would pose additional risks.

When evacuation to the primary place of refuge is not possible, personnel will proceed to a designated alternate location and remain until further notification from the Tetra Tech FOL. The FOL or the SSO will perform a head count at this location to account for and to confirm the location of site personnel. Emergency response personnel will be immediately notified of any unaccounted personnel. The SSO will document the names of personnel onsite (on a daily basis) in the site Health and Safety Logbook. This information will be utilized to perform the head count in the event of an emergency.

Evacuation procedures will be discussed during the pre-activities training session, prior to the initiation of project tasks. Evacuation routes from the site and safe places of refuge are dependent upon the location

at which work is being performed and the circumstances under which an evacuation is required. Additionally, site location and meteorological conditions (i.e., wind speed and direction) may dictate evacuation routes. As a result, assembly points will be selected and communicated to the workers relative to the site location where work is being performed. Evacuation should always take place in an upwind direction from the site.

2.5 EMERGENCY CONTACTS

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

As soon as possible, the Navy point of contact Ms. Tracey McKenzie will be informed of any incident or accident that requires medical attention.

Any pertinent information regarding allergies to medications or other special conditions will be provided to medical services personnel. This information is listed on Medical Data Sheets filed onsite (See Attachment III).

TABLE 2-1
EMERGENCY CONTACTS
NSB-NLON, GROTON, CONNECTICUT

CONTACT	PHONE NUMBER
Local NSB-NLON Fire Department and EMS	Ext. 3333 from base phone or (860) 694-3333
Lawrence & Memorial Hospital	(860) 442-0711
(Off-Base) Groton Police and Fire Department	911
Poison Control Center	(800) 222-1222
Utility Emergencies (electric, gas, water and sewer) NSB-NLON Public Works:	(860) 694-4711
Connecticut Call Before Your Dig National Clearinghouse	(800) 922-4455 811
Site Contact Tracey McKenzie	(860) 694-5649
Navy RPM Dominic O'Connor	(757) 341-2014
NSB-NLON Security	(860) 694-3444
Tetra Tech Project Manager Corey Rich, P.E.	(412) 921-8984
Tetra Tech Project Health and Safety Officer Tom Dickson	(412) 921-8457
Tetra Tech CLEAN Health and Safety Manager Matthew M. Soltis, CIH, CSP	(412) 921-8912
Work Care	(800) 455-6155 X109 Fax (714) 456-2154

2.6 EMERGENCY ROUTE TO HOSPITAL

Lawrence and Memorial Hospital, 365 Montauk Ave., New London:

Exit the base and proceed South on Route 12. Exit onto I-95 South and take exit 82A. Proceed on the service road and continue until turning on Coleman Street. Travel on Coleman St. to the intersection of Coleman and Bank Streets. Turn right onto Bank Street and follow to the intersection of Ocean Avenue. Turn left onto Ocean Avenue and follow signs to the Hospital.

FIGURE 2-1
MAP TO LAWRENCE AND MEMORIAL HOSPITAL



2.7 EMERGENCY ALERTING AND ACTION/RESPONSE PROCEDURES

Tetra Tech personnel will be working in close proximity to each other at NSB-NLON. As a result, hand signals, voice commands, and line of site communication will be sufficient to alert site personnel of an emergency. Two-way radios may also be used between onshore and onboard workers to communicate emergency situations and request assistance where necessary.

If an incident occurs, personnel will engage incipient response measures (spill control, use of fire extinguisher, provision of First Aid using personnel and resources onsite. Should it be determined these measures are not able to control the incident, the scenario will be upgraded to an emergency.

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

- Initiate the evacuation via hand signals, voice commands, or line of site communication
- Call (860) 694-3333 report the emergency
- Report to the designated refuge point where the FOL will account for site personnel
- Describe to the FOL (FOL will serve as the Incident Coordinator) pertinent incident details.

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

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

2.8 PPE AND EMERGENCY EQUIPMENT

A first-aid kit, eye wash units (or bottles of disposable eyewash solution) and fire extinguishers (strategically placed) will be maintained onsite and shall be immediately available for use in the event of an emergency. This equipment will be located in the field office as well as in each site vehicle. At least one first aid kit supplied with equipment to protect against bloodborne pathogens will also be available on site. Personnel identified within the field crew with bloodborne pathogen and first-aid training will be the only personnel permitted to offer first-aid assistance.

2.9 DECONTAMINATION PROCEDURES / EMERGENCY MEDICAL TREATMENT

During any site evacuation, decontamination procedures will be minimal consisting of the removal of gloves and apron where and when used.

First aid/CPR provided will incorporate the following protective measures:

2.9.1 Scene Safety

Prior to providing emergency medical assistance, personnel are directed to evaluate the scene around them. The situation that may have caused the emergency may still exist and threaten the responder. If you were there when the incident happened you will be the best to make this determination.

2.9.2 Protect Yourself

Prevent direct contact with the injured person's body fluids by using:

- Surgeon's gloves when handling cuts, abrasions, bites, punctures, etc. or any part of the injured person.
- Safety glasses and surgeons masks if there is the potential for uncontrolled spread of body fluids.
- CPR Micro-Shield mouthpiece when administering mouth to mouth to prevent contact with the injured person's body fluids.

In order to engage these protective measures the FOL and/or the SSO shall ensure that the above items are part of their first-aid kit(s).

2.9.3 Notification Procedures

The PHSO should be notified anytime First-Aid is administered by another person. The PHSO will be immediately notified in event that personnel providing emergency first-aid came into contact with body fluids or other potentially infectious tissues so provisions of the Blood borne Pathogen Program may be instituted. This would include prophylactic measures including vaccination, testing, etc.

The Tetra Tech Incident Reporting Procedure has been included in this HASP as well as the TOTAL system which allows electronic recording. This will be the mechanism for reporting incidents along with immediate verbal reporting. This will be the mechanism used to record elements of the event; necessity for further investigation; corrective measures implementation.

If you are unsure whether or not to fill out an incident report take steps to complete the report. Once completed, contact the PHSO for additional instructions. This Incident Reporting/Documentation has been provided within this section.

A minimum of two trained and qualified First Aid/CPR provider(s) shall be onsite to provide emergency medical first aid and/or CPR services.

2.10 INJURY/ILLNESS REPORTING

If any Tetra Tech personnel are injured or develop an illness as a result of working on site, the Tetra Tech "Incident Report Form" (Attachment II) must be followed. Following this procedure is necessary for documenting of the information obtained at the time of the incident.

2.10.1 Medical Data Sheet

Attachment III contains a personal Medical Data Sheet. Any pertinent information regarding allergies to medications or other special conditions will be provided to medical services personnel. This information is listed on Medical Data Sheets filed onsite. If an exposure to hazardous materials has occurred, provide information on the chemical, physical, and toxicological properties of the subject chemical(s) to medical service personnel. If needed and once completed, the appropriate personnel on the incident report form should be notified and their signatures obtained. Once signed, this form should be stored on site and filed. This form contains information relating to employee health and must be used in a manner that protects the confidentiality of the employee to the extent possible.

3.0 SITE BACKGROUND

This section provides information pertaining to NSB-NLON and the sites that are to be investigated. This information will be revised if additional information becomes available or if additional sites are going to be investigated.

3.1 SITE HISTORY

In 1867, the State of Connecticut donated a 112-acre parcel of land on the eastern bank of the Thames River to the Navy. In 1868, the Navy officially designated the property a Navy Yard that was used to moor small craft and obsolete warships and that served as a coaling station for the Atlantic fleet. NSB-NLON was gradually expanded over the ensuing decades with a major expansion during World War II. In 1946, the waterfront north of Pier 15 was developed extensively to accommodate berthing of the United States (U.S.) reserve Naval fleet. The area was dredged and filled with offsite fill material (e.g., sand and other inert material), and bulkheads, piers, support buildings, and utilities were constructed.

Currently, NSB-NLON consists of more than 207 buildings on 687 acres of land and provides base command for Naval submarine activities in the Atlantic Ocean. NSB-NLON also provides housing for Navy personnel and their families and supports submarine training facilities, military offices, medical facilities, and facilities for submarine maintenance, repair, and overhaul.

3.2 SITE OPERATIONS

Various historic site operations may have impacted the Lower Subbase (LS) zones. Battery overhaul was one of the largest operations at the LS prior to the advent of nuclear-powered submarines. Lead-acid battery maintenance and overhaul activities were conducted until the mid-1950s. A classified materials incinerator was also operated in the LS until 1967. It is possible that the resulting ash was disposed (specific locations unknown) in portions of the LS. Petroleum products were used by the Navy throughout the LS. Releases of petroleum products to the environment may have occurred because of leaks from underground storage tanks (USTs) and fuel distribution lines, vehicle and locomotive maintenance operations and associated waste disposal practices, and marine fueling activities. Other ship and submarine maintenance activities (e.g., sandblasting and painting) were also conducted in the LS and adjacent Thames River.

For Zone 4, operations at Site 13 (Building 79 Former Waste Oil Pit) contributed significantly to the contamination found in the zone. The Building 79 service area included a pit in the northwestern corner of the building into which waste oil and solvents were reportedly drained during the cleaning and servicing

of diesel engines. The pit is no longer in use and has been filled with concrete. Additional Site 13 onshore operational details can be found in the FS report.

Site 19 (Former Solvent Storage Area) includes former Building 316, which was located south of the gate valve building (Building 332). Various solvents used for equipment cleaning were stored in Building 316 until approximately 10 years ago. No significant contamination has been discovered in the vicinity of Site 19. The roof and doors of Building 316 were previously demolished leaving only the side walls.

Maintenance dredging has been undertaken by the Navy in the Thames River adjacent to the LS to maintain water depths required for the submarine fleet. The most recent dredging was completed in February 2010 beyond the western edge of what is currently considered to be Zone 4 sediment. Adjacent to the eastern edge of this dredge area is a dredge area buffer zone where some sediment may have been disturbed as a result of dredging.

The former Marine Railway at Pier 1 operated from approximately 1930 to 1960 and was used to pull ships out of the water for sandblasting/paint scraping and maintenance. These operations contributed to contamination found in Inner and Outer Pier 1. Sediment sampling identified high levels of PAHs and PCBs in sediment from Inner and Outer Pier 1. As part of a non-time critical removal action, the majority of the contaminated sediment in Inner and Outer Pier 1 was removed through dredging. Mechanical dredging was completed at Inner and Outer Pier 1 in March 2010 and hydraulic dredging will be completed at Inner Pier 1 in Spring of 2012.

The northern portion of Pier 1 is constructed on a solid concrete foundation which extends approximately 175 feet from the CIF building (Building 476) into Thames River and forms the eastern boundary of the Inner Pier 1 area. The pile-supported portion of Pier 1 was demolished and removed by the Navy in 2009.

4.0 SCOPE OF WORK

This section of the HASP addresses proposed site activities that are to be conducted at the previously discussed sites at NSB-NLON.

The field activities will include the following tasks:

- Mobilization/Demobilization
- Sediment sampling
 - Vibracore techniques will be used to collect continuous sediment core samples from 6 feet in length up to 10-feet.
- Decontamination
- IDW management

Any tasks to be conducted outside of the elements listed here will be considered a change in scope requiring modification of this document. The PM or a designated representative will submit requested modifications to this document to the HSM.

5.0 GENERAL SAFE WORK PRACTICES

The purpose of this section is to identify general safe work practices that will be employed to control the anticipated hazards. These along with the appropriate hazard prevention/hazard control measures identified in the AHAs that are to be observed for each planned task or operation. Additionally, potential hazard and hazard control matters that are relevant but are not necessarily task-specific are addressed in the following portions of this section.

Section 6.0 presents additional information on hazard anticipation, recognition, and control relevant to the planned field activities.

5.1 GENERAL SAFE WORK PRACTICES

In addition to the task-specific work practices and restrictions identified in the AHAs attached to this HASP, the following general safe work practices are to be followed when conducting work on-site.

- Eating, drinking, chewing gum or tobacco, taking medication, or smoking in contaminated or potentially contaminated areas or where the possibility for the transfer of contamination exists is prohibited.
- Wash hands and face thoroughly upon leaving a contaminated or suspected contaminated area.
- If a source of potable water is not available at the work site that can be used for hands-washing, the use of waterless hands cleaning products and wipes will be used, followed by actual hands-washing as soon as practicable upon exiting the site.
- Minimize contact with the site contaminants of concern and avoid hand to mouth activity to protect against potential exposure.
- Avoid contact with potentially contaminated surfaces.
- Avoid, kneeling on the deck or leaning or sitting on surfaces or equipment potentially contaminated during sampling.
- Keep monitoring equipment away from potentially contaminated surfaces.
- Plan and mark entrance, exit, and emergency evacuation routes.

- Rehearse unfamiliar operations prior to implementation.
- Buddies should maintain visual contact with each other and with other on-site team members by remaining in close proximity to assist each other in case of emergency.
- Establish appropriate safety zones including support, contamination reduction, and exclusion zones.
- Minimize the number of personnel and equipment in contaminated areas (such as the exclusion zone) to keep personnel from chemical and physical hazards.
- Non-essential vehicles and equipment should remain within the support zone.
- Contaminant avoidance and exposure control will depend on
 - Good work hygiene practices
 - Diligent housekeeping
 - Diligent adherence to decontamination procedures.
- Immediately report injuries, illnesses, and unsafe conditions, practices, and equipment to the SSO.
- Observe co-workers for signs of toxic exposure and heat or cold stress.
- Inform co-workers of potential symptoms of illness, such as headaches, dizziness, nausea, or blurred vision.

5.2 VIBRACORE SEDIMENT SAMPLING SAFE WORK PRACTICES

The following Safe Work Practices are to be followed when working in or around the VibraCore rig operations.

5.2.1 Before Drilling

Identify the underground utilities and buried structures before drilling. This service is provided by the Connecticut One Call Systems, Inc. or through calling the National Clearing House at 811. The typical sequence of events is as follows: A request is submitted to the One Call System for clearance of a location(s). While it is difficult in this situation to exactly locate each sample location, it may be necessary to meet the Utility Locators to point out the areas of the river where the sampling will occur. The clearance will likely be easy but it is not uncommon for utilities to cross water ways. If areas of the river

have been identified as a utility corridor, then that area will be avoided as limiting drift and movement is difficult to control.

Typical timeline for marking and providing clearances is 48 to 72 hours. A ticket or ticket number will be provided referring to your clearance. This will have a timeline, generally 14 days. Situations may arise because site personnel allow their tickets to expire, and then accidentally encounter a utility. Tickets must be maintained valid by asking for a re-issue or extension, when necessary, prior to expiration. The FOL and/or the SSO will contact non-response utility owners to ensure full clearance.

- Ensure that the machine guarding is in place and properly adjusted.
- The hoisting mechanism, tripod or frame and the VibraCore sampling device will undergo an equipment inspection.
 - As part of this inspection the emergency stop devices must be tested to ensure they are functioning as intended.
 - The documented equipment inspection will be performed upon arrival of the boat and sampling unit at the job site and anytime major repairs are made.
- Check the functional operating mechanisms for maladjustments that interfere with proper equipment operation.
- Check for deterioration or leakage in lines, tanks, valves, pumps and other parts of the air or hydraulic systems.
- Check load hooks for cracks or having more than 15 percent in excess of normal throat opening or more than 10 degrees of twist from the plane of the unbent hook.
- Check load chain, including end connections, for excessive wear, (10 percent or more wear in chain links) twist, distorted links interfering with proper function, or stretch beyond manufacturer's recommendations.
 - Chains will have tags indicating capacity, length, and date of last inspection.
- Check lifting ropes and slings, including end connections, for excessive wear, stretch, kinking, or twisting.
- Check lifting rope and slings for any deterioration, resulting in appreciable loss of original strength, such as described below and remove from service if needed:

- Reduction in rope diameter below nominal diameter due to loss of core support, internal or external corrosion or wear of outside wires.
 - A number of broken outside wires and the degree of distribution or concentration of such broken wires.
 - Worn outside wires.
 - Sections of rope which are normally hidden during inspection or maintenance procedures, such as parts passing over sheaves, should be given close inspection as these are points most likely to fail.
 - Corroded or broken wires at end connections.
 - Corroded, cracked, bent, worn or improperly applied end connections.
 - Severe kinking, crushing, cutting or unstranding.
- Wire rope with any one of the following conditions should be removed from service.
 - Hoisting rope has twelve or more randomly distributed broken wires in one rope lay, or four broken wires in one stand in one rope lay.
 - Wear of one-third of the original rope diameter of outside individual wires.
 - Kinking, crushing, bird caging or any other damage resulting in distortion of the rope structure.
 - Evidence of any heat damage from any cause.
 - Reductions from nominal diameter of more than:
 - 3/64 of an inch for diameters to and including 3/4 inch wire rope.
 - 1/16 of an inch for 7/8 inch diameter rope to 1 and 1/8 inch rope.
 - 3/32 of an inch for rope diameters of 1 and 1/4 inches to 1 and 1/2 inches.
- Check the functional operating mechanism for excessive wear of components.
 - Check rope reeving for noncompliance with manufacturer's recommendations.
 - Check for deformed, cracked or corroded members.
 - Check for loose bolts or rivets.
 - Check for cracked or worn sheaves and drums.
 - Check for worn, cracked or distorted parts such as pins, bearings, shafts, gears, rollers, locking and clamping devices.
 - Check for excessive wear on brake system parts, linings, pawls and ratchets.

- Check for excessive wear of chain drive sprockets and excessive chain stretch.
- Check electrical apparatus for signs of pitting or any deterioration of controller containers, limit switches and push button stations.
- Check to see that a preventative maintenance and lubrication program as recommended by the hoist manufacturer should be established and records kept of service work and dates.
- Check to see that lockout program is in place and used for equipment servicing.
 - Check the manufacturer's inspection recommendations and follow the items not listed in this inspection report.
- Each day the operator will perform an inspection of the major components. This inspection will not be required to be documented.
- The operator or operator's helper will establish an equipment staging and laydown plan.
 - The purpose of this is to keep the work area (especially onboard, clear of clutter and slips, trips, and fall hazards).
 - Mechanisms to secure heavy objects (such as drive rods and continuous tubing) to avoid the collapse of stacked equipment.

5.2.2 During Sample Acquisition

- Only qualified operators and knowledgeable ground crew personnel will participate in the operation of the sampling device.
- During maintenance, use only manufacturer provided/approved equipment (i.e. connectors, etc.)
- Only personnel absolutely essential to the work activity will be allowed in the exclusion zone.

5.2.3 After Sample Acquisition

- Equipment used will have the visible materials removed and the devices will be flushed with potable or river water to ensure cleanliness.
- Keeping items clean will also facilitate the daily walk arounds.

- If it is muddy a visual inspection cannot be performed. It is not recommended that soapy water be discharged into the river
- Motorized equipment will be fueled prior to the commencement of the day's activities.
- During fueling operations the equipment will be shutdown.
- Provisions to control spills (fuels onboard; hydraulic driven hoisting mechanism) will be maintained onboard.

6.0 HAZARD ASSESSMENT AND CONTROLS

This section provides reference information regarding the chemical and physical hazards which may be associated with activities that are to be conducted as part of the scope of work.

6.1 CHEMICAL HAZARDS

Based on an evaluation of previous analytical data and historical information about the site, the primary contaminants of concern (COCs) at this site detected in sediment or surface water are Polychlorinated biphenyls (PCBs), PAHs, pesticides, and metals based on a 2008 surface sediment sampling event. Although it is a possibility, it is very unlikely that the COCs will approach airborne concentrations that meet or exceed current occupational exposure limits (OEL). Table 6-1 lists the COCs and a comparison to current OELs.

**TABLE 6-1
MAXIMUM CONCENTRATIONS OF COCs
AND CURRENT OCCUPATIONAL EXPOSURE LIMITS**

Contaminant of Concern	Highest Concentration Previously Detected		Current OSHA PEL And ACGIH TLV
	Zone 4	Pier 1	
Copper	735 mg/kg	463 mg/kg	OSHA: 1 mg/m ³ TWA ₈ ACGIH: 1 mg/m ³ TWA ₈
Lead	1240 mg/kg	295 mg/kg	OSHA: 0.05 mg/m ³ TWA ₈ ACGIH: 0.5 mg/m ³ TWA ₈
Zinc	4070 mg/kg	669 mg/kg	OSHA: 5 mg/m ³ TWA ₈ ACGIH: 2 mg/m ³ TWA ₈
Total PCBs	1.4 mg/kg	0.51 mg/kg	OSHA: 0.5 mg/m ³ TWA ₈ (skin)
Total PAHs	105 mg/kg	73.7 mg/kg	OSHA: 5 mg/m ³ TWA ₈ 0.2 mg/m ³ Ceiling
Total DDT	0.24 mg/kg	0.071 mg/kg	0.0005 mg/kg/day Oral

Table Notes:

mg/kg: milligram per kilogram

TWA₈: Average air concentration over an 8-hour work period that is not to be exceeded

OSHA STEL: Concentration in air not to be exceeded more than 5 minutes in any 3 hour period

ACGIH STEL: Concentration in air not to be exceeded more than 15 minutes more than 4 times a day

In fact, based on the available data, none of the potential contaminants of concern including COCs are likely to be encountered at concentrations that would represent a reasonable exposure concern given that:

- The planned work area is outdoors, with ample natural ventilation that will reduce any airborne COCs through dilution and dispersion,
- Sediment sampling activities will require very limited contact with potentially contaminated media and as it will be pulled from a wet environment the likelihood of the materials becoming airborne is negligible
- The amount of dust potentially that would have to be generated to reach the OELs is within the visible range (>2.5 mg/m³)

Potential exposure that may occur through direct contact or ingestion of contaminants can be adequately controlled through the use of appropriate personal protective equipment and good hygiene.

Inhalation: Based on the data from previous investigations and historical data at this worksite, worker exposure to airborne concentrations of the COCs is highly unlikely based on:

- Inadequate source concentrations of COCs
- Sediments will be wet when extracted reducing if not eliminating the potential for airborne mobility.

Ingestion and Skin Contact: Potential exposure concerns to contaminants of concern may also occur through ingesting or coming into direct skin contact with contamination in surface water and sediment. The likelihood of worker exposure concerns through these two routes are also considered very unlikely based on:

- Source concentration
- Provided that workers follow good personal hygiene and standard good sample collection/sample handling practices
- Personnel wear appropriate PPE as specified in this HASP.

Examples of onsite practices that are to be observed that will protect workers from exposure via ingestion or skin contact include the following:

- No hand-to-mouth activities on site (eating, drinking, smoking, etc.)
- Washing hands upon leaving the work area and prior to performing any hand to mouth activities

- Wearing surgeon's-style gloves whenever handling potentially-contaminated media, including groundwater, soil, and sediment, hand tools, and sample containers.

6.1.1 Polychlorinated Biphenyls (PCBs)

PCBs are either oily liquids, solids, or bound to solids. These materials in appearance are generally colorless to light yellow. Under suitable conditions, some PCBs can exist as a vapor in air but that will not be the case during sediment sampling. PCBs have no known smell or taste. Many commercial PCB mixtures are known in the U.S. by the trade name Aroclor.

PCBs have been used as coolants and lubricants in transformers, capacitors, and other electrical equipment because they don't burn easily and are good insulators. The manufacture of PCBs was stopped in the U.S. in 1977 because of evidence they build up in the environment and can cause harmful health effects. Products made before 1977 that may contain PCBs include old fluorescent lighting fixtures and electrical devices containing PCB capacitors, and old microscope and hydraulic oils.

Health effects that have been associated with exposure to PCBs include acne-like skin conditions in adults referred to as chloroacne. This is typically derived after repeated and prolonged exposure. PCBs are bioaccumulative substance that stores within a person's fat tissue. Mobilization of these substances may occur during changes in diet or dieting. Acute concentrations absorbed, ingested, or inhaled can result in irritation at the points of contact. Systemically signs and symptoms of overexposure may include nausea, vomiting, abdominal pain, jaundice, increased blood pressure and fatigue. Exposure may also be further facilitated through aspiration of the vomitus.

6.1.2 Polynuclear Aromatic Hydrocarbon (PAHs)

PAHs are a group of over 100 different chemicals that are formed during the incomplete burning of coal, oil and gas, garbage, or other organic substances like tobacco or charbroiled meat. PAHs are usually found as a mixture containing two or more of these compounds, such as soot.

Some PAHs are manufactured. These pure PAHs usually exist as colorless, white, or pale yellow-green solids. PAHs are found in coal tar, crude oil, creosote, and roofing tar, but a few are used in medicines or to make dyes, plastics, and pesticides.

Acute signs and symptoms may include:

- Irritation to the eyes, skin and respiratory tract. Skin contact may include redness, itching, pigment changes and dermatitis.

- Certain isomers will result in photosensitization (worsening of a skin rash with continued exposure to sunlight).
- Ingestion in sufficient concentrations will result in nausea, vomiting, abdominal pain, rapid pulse, and respiratory distress.
- Anytime a person vomits the potential for aspiration and exposure is dramatically increased.

6.1.3 Metals

Toxic metals, including heavy metals, are individual metals and metal compounds that negatively affect people's health. In very small amounts, many of these metals are necessary to support life. However, in larger amounts, they may become toxic as bioaccumulative concentrations increase.

6.1.4 DDT

Eating food with large amounts (grams) of DDT over a short time would most likely affect the nervous system. People who swallowed large amounts of DDT became excitable and had tremors and seizures. They also experienced sweating, headache, nausea, vomiting, and dizziness. These effects on the nervous system went away once exposure stopped. The same type of effects would be expected by breathing DDT particles in the air or by contact of the skin with high amounts of DDT. No effects have been reported in adults given small daily doses of DDT by capsule for 18 months (up to 35 milligrams [mg] every day).

6.2 PHYSICAL HAZARDS

The following is a list of physical hazards that may be encountered at the site or may be present during the performance of site activities.

- Water hazards – Collision & Drowning
- Slip, trips, and falls – Wet and sediment covered decks
- Strain/muscle pulls from heavy lifting drive rods or water laden sediment cores
- Struckby – Hoisting/Rigging
- Cold/heat stress
- Pinch/compression points and sharp objects
- Inclement weather

These hazards are discussed further below, and are presented relative to each task in the task-specific Activity Hazard Analysis.

6.2.1 Water Hazards

Planned activities involve locations that are near bodies or on bodies of water. When working out of a boat, United States Coast Guard (USCG) approved personal flotation devices (PFD) will be used. Refer to the Marine Safety Plan provided in Attachment I of this HASP. Due to the obvious hazards associated with working on or near water edge during inclement weather, field activities may be temporarily suspended or terminated at the discretion and direction of the Navy contact.

6.2.2 Slips, Trips, and Falls

During various site activities there is a potential for slip, trip, and fall hazards associated with wet, steep, unstable work surfaces, as well as on slippery boat decks. To minimize hazards of this nature:

- Personnel required to work in and along areas prone to these types of hazards will be required to exercise caution, and use appropriate precautions (restrict access, guardrails, life lines and/or safety harnesses) and other means suitable for the task at hand.
- Non-slip surfaces on the boat deck
- Good housekeeping – Keep water spilled onto the deck cleaned up; keep tools picked up; keep travel pathways clear of obstructions.
- Site activities will be performed using the buddy system.

6.2.3 Strain/Muscle Pulls from Heavy Lifting

During site activities there is some potential for strains, sprains, and/or muscle pulls due to the physical demands and nature of this site work. A Vibracore subsurface coring unit will be used to collect the sediment core samples. The unit (frame and sediment corer) will be lowered using a winch system to the river floor. The sediment core is driven by a pneumatically driven vibratory hammer to advance to the desired depth. At the completion of the sampling the winch will extract the entire system. Prior to the sediment core breaking the water, a crew member will secure a cap to maintain suction and core integrity. Based on the boat configuration, care must be exercised at this time to avoid falling in or becoming trapped between a fixed item and the hoisted load. Fall protection maybe employed to minimize falling overboard.

Crew members will then rotate the winch boom and lower the frame onto the deck. The use of taglines will be evaluated onsite. No crew members are permitted under an elevated load. Crew members will then remove the sample and add or subtract drive rods as necessary.

To avoid injury during lifting tasks personnel are to lift with the force of the load carried by their legs and not their backs. When lifting or handling heavy material or equipment use an appropriate number of personnel. Keep the work area free from ground clutter to avoid unnecessary twisting or sudden movements while handling loads.

6.2.4 Cold/ Heat Stress

The following create conditions when such hazards may be experienced.

Heat Stress - During sample retrieval a member or members will be equipped with Rainsuits (The bib overall bottoms); Tyvek or Saranek coveralls. These persons performing physically taxing duties are prone to conditions of heat stress. To combat this, the following measures will be employed:

- Adequate hydration – Do not use thirst as your guidance to drink - 8oz/hour. This amount maybe increased or decreased based on
 - PPE levels;
 - Physical activity
 - Whether you are exhibiting signs and symptoms of heat stress.
 - Conditions making you prone to these hazards such as certain medications or acclimation period.
 - Observe urine color – If it is dark, drink more; cloudy, drink more water.
 - Squeeze your fingernail, if the response time to turn back to pink is greater than 3 seconds you may be dehydrated and you should increase your water intake.
 - If loose skin does not show the elasticity you maybe dehydrated.

- Take breaks as needed, preferably out of the direct sun.

- Sun Protection – Persons will be required to wear hardhats, especially in the areas of the winch operation. This will offer some limited shade and protection from the sun. Hats will wide brims or sun shield may also be employed. Sunscreen and wrap around safety glasses are also recommended.

See Section 4.0 of the HSGM for fluid intake recommendations. For each person this may be different.

Initial signs of dehydration may include:

- Thirst
- Loss of appetite
- Dry skin
- Skin flushing
- Dry mouth
- Fatigue or weakness
- Chills and head rush

Increased signs of dehydration may include:

- Increased heart rate
- Increased respiration
- Decreased sweating
- Decreased urination
- Increased body temperature
- Extreme fatigue
- Muscle cramps
- Headaches
- Nausea
- Tingling of the limbs

Hydration is necessary even if you are not thirsty when these conditions exist.

Cold stress – This condition is likely in the event you become submerged in the water. To combat this hazard:

- Don't fall off the boat – See preventative measures in 6.2.1.
- It is preferred that you have a waterproof duty bag with towels and at least one change of clothes.
- When and where necessary take warming breaks if the conditions dictate.
- Dress in layers, this will allow clothes to be removed as it becomes warmer in the later day. Have clothes with you that will also permit you to add layers should weather condition deteriorate.

The signs and symptoms of heat and cold stress are provided in Section 4.0 of the HSGM. However, to support monitoring for these conditions the following provisions:

- Oral thermometer with covers
- Watch for measuring pulse and respiration
- Generally a weight scale would also be required in order to determine weight loss through perspiration, however due to limited capacity on the boat this will not be required for on the boat operations.

Action levels are provided in Section 4.0 of the Tetra Tech HSGM, which the SSO is responsible for reviewing and implementing as appropriate on this project.

6.2.5 Pinch/Compression Points and Sharp Objects

Handling of tools, machinery, and other equipment on site may expose personnel to pinch/compression point and sharp object hazards during normal work activities. Where applicable, equipment will have intact and functional guarding to prevent personnel contact with hazards. Personnel will exercise caution when working around pinch/compression points and sharp objects (such as tools used to slice open the plastic sleeves containing the cores), using additional tools or devices (e.g., pinch bars, etc.) to assist in completing activities.

Cuts and Lacerations - During processing of the samples, opening the poly carbonate or acetate liners will be required. The following measures will be employed:

- Secure the tube in a tube retention tub or similar device.
- Use a geoprobe or similar knife to open the liner.
- When a carpet hook knife is employed, change out blades as often as necessary to keep a sharp knife. Throw the blades into a hardsided container for disposal.
- Do not attempt to cut tubes on your knee or holding them in your hand.
- Always cut away from yourself and others.
- Wear a cut resistant glove at least on your non-knife hand.
- Carry glassware in a hardsided container. That way if you fall you will not impale yourself on broken glass.

See Section 4.13 of the HSGM for additional safe work practices to prevent cuts and lacerations.

6.2.6 Natural Hazards

Natural hazards such as poisonous plants, bites from poisonous or disease carrying animals or insects (e.g., snakes, ticks, mosquitoes) are often prevalent at sites that are being investigated as part of hazardous waste site operations. While the majority of the sample collection will be from a boat, samples will be transported to shore for processing. These persons onshore are at a greater risk to ticks and other inherent biting and stinging insects.

To minimize the potential for site personnel to encounter these hazards, the following measures will be followed:

- Nesting areas in and about work areas will be avoided to the greatest extent possible. Additionally, insect repellents may be used by site personnel.
- Personnel who are allergic to stinging insects (such as bees, wasps and hornets) must be particularly careful since severe illness and death may result from allergic reactions.
- As with any medical condition or allergy, information regarding the condition must be listed on the Medical Data Sheet (see Attachment III of this HASP), and the FOL or SSO notified.
- Work areas will be inspected to look for any evidence of poison ivy or oak.
- Persons will avoid setting up sample processing stations in this area or in areas that persons must travel through to access that these hazardous conditions may exist.
- Long sleeved shirts and long pants (tucked into boots), and avoiding potential nesting areas, will minimize the potential for exposure.

During warm months (spring through early fall), tick-borne Lyme disease may pose a potential health hazard. The longer a disease carrying tick remains attached to the body, the greater the potential for contracting the disease. Wearing long sleeved shirts and long pants (tucked into boots and taped) will prevent initial tick attachment, while performing frequent body checks will help prevent long term attachment. Site first aid kits should be equipped with medical forceps and rubbing alcohol to assist in tick removal. Again while this does not apply to the activities on the boat the onshore support operations will be subjected to these hazards.

Mosquito-Borne Illnesses - Mosquitoes may carry diseases including St. Louis Encephalitis, Eastern Equine Encephalitis, La Crosse Encephalitis, and West Nile Virus. Mosquitoes become infected after biting infected birds. The symptoms of mosquito-borne illnesses may include headache, moderate to high fever, stiff neck, and confusion. In serious cases, coma, seizures, or paralysis can result. Symptoms usually appear between 5 to 15 days after exposure to infected mosquitoes. Mosquito-borne illnesses may be mild or serious and can lead to death. Persons both onshore and on the boat will be exposed to these hazards.

Precautions include the following:

- Limit outdoor activities during peak mosquito times – at dusk and dawn.
- Wear long-sleeved shirts and long pants whenever you are outdoors.
- Apply insect repellent according to manufacturer's instruction to exposed skin. An effective repellent will contain 20 to 30 percent DEET (N,N-diethyl-meta-toluamide). Avoid products containing more than 30 percent DEET.
- Spray clothing with repellents containing permethrin or DEET; mosquitoes may bite through thin clothing.

For information regarding, symptoms of exposure, and other natural hazards consult Section 4.0 of the Health and Safety Guidance Manual.

6.2.7 Vehicular and Equipment Traffic

To minimize the potential for injuries associated with potential vehicular hazards, site personnel will be instructed to maintain awareness of boat traffic and moving equipment when performing site activities. Site personnel will wear USCG Personal Floatation Device with reflective strips and colors to enhance visibility.

The other aspect we wish to address is the boat and trailer. The trailer will be inspected and operated by someone with the proper endorsements for a load that size. The trailer will be inspected and in good working order. The breakaway chains will be snap type to avoid inadvertent release should the trailer break away from the hitch. The battery that will engage the brakes will be sufficiently charged to engage the brakes. The lights will be operational. A spotter will be used on the ground during back up and launching operations.

Significant property damage has occurred due to cutting turns too short, traveling too fast, inability to respond in cases when a wheel or wheels of the trailer has left the side of the road. Trailer transport personnel will be well versed in the operation of the vehicle when pulling a trailer. The boat weight with equipment will be suitably rated for the hitch employed.

6.2.8 Inclement Weather

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

7.0 AIR MONITORING

Direct reading instruments will not be used within these areas of concern to evaluate the presence of site contaminants and other potentially hazardous conditions. There were a number of factors supporting this decision:

- The COCs are not readily detectable using the various screening instruments.
- As the vast majority of these contaminants do not volatilize (metals, PCBs, some PAHs) that would not be detected in air by the general screening instrument.
- The source concentrations previously reported do not support exposure potential via inhalation.
- The sediment samples will be wet and will also retard their ability to become airborne.

Should any of these conditions change air monitoring will also be modified to adapt to this change.

8.0 TRAINING/MEDICAL SURVEILLANCE REQUIREMENTS

8.1 INTRODUCTORY/REFRESHER/SUPERVISORY TRAINING

This section is included to specify health and safety training and medical surveillance requirements for Tetra Tech and subcontractor personnel participating in on site activities. Site personnel participating in field activities identified in Section 4.0, must have completed:

- 40-hours of general Site Worker introductory hazardous waste site training and 3 days of onsite supervision
- 8-hours of General Site Worker Refresher, if they have had their introductory training more than 12 months prior to site work.
- 8-hour General Site Worker Supervisory training in accordance with 29 CFR 1910.120(e)(4) will be required for site supervisory personnel.

Documentation of introductory, supervisory, refresher training, and site-specific training (section 8.2) will be maintained at the site. Copies of certificates or other official documentation will be used to fulfill this requirement.

8.2 SITE-SPECIFIC TRAINING

Tetra Tech SSO will provide site-specific training to Tetra Tech and subcontractor employees who will perform work on this project. Figure 8-1 will be used to document the provision and content of the project-specific and associated training. Site personnel will be required to sign this form prior to commencement of site activities. This training documentation will be employed to identify personnel who through record review and attendance of the site-specific training are cleared for participation in site activities. This document shall be maintained at the site to identify and maintain an active list of trained and cleared site personnel.

8.2.1 Tail-Gate Safety Meetings

The Tetra Tech SSO will also conduct a pre-activities training session prior to initiating site work. This will consist of a brief meeting at the beginning of each day to discuss operations planned for that day, and a review of the appropriate Activity Hazard Analysis (AHA) with the planned task participants. A short meeting may also be held at the end of the day to discuss the operations completed and any problems encountered. Documentation of this effort may be recorded in the Project Logbook or utilizing Figure 8-2.

8.2.2 Vessel Operation

Personnel who will operate the boat will have suitable training and have safe boating certification or suitable credentials attesting to their skills.

8.3 MEDICAL SURVEILLANCE

Personnel participating in project field activities will have had a physical examination meeting the requirements of their respective employer's medical surveillance program. Medical surveillance program will as a minimum meet the requirements stipulated in 29 CFR 1910.120(f). Documentation for medical clearances will be maintained on the project site. Figure 8-1 will be completed for every employee participating in onsite work activities at this site. This application will allow the FOL and/or the SSO to monitor field personnel status as it pertains to training and medical surveillance.

9.0 SITE CONTROL

This section outlines the means by which Tetra Tech will delineate work zones and use these work zones in conjunction with decontamination procedures to prevent the spread of contaminants into previously unaffected areas of the site. It is anticipated that a non-contiguous three-zone approach will be used during work at this site. This approach will be comprised of an exclusion zone, a contamination reduction zone, and a support zone. It is also anticipated that this approach will control access to site work areas, restricting access by the general public, minimizing the potential for the spread of contaminants, and protecting individuals who are not cleared to enter work areas.

9.1 EXCLUSION ZONE

The exclusion zone will be considered those areas of active operations plus an established safety zone depending on the task. The following represent the exclusion zone boundaries for the following identified tasks:

- Sample processing activities – 10 feet surrounding the sample collection point
- Low Pressure Decontamination – 5 feet surrounding the point of operation
- High Pressure decontamination activities – 35 feet surrounding the point of operation
- Vibracore Sediment Sampling – Submersible Unit – Swing boom radius of the winch system + 10-feet unless directly supporting the operation. This distance as it does occur on the deck of a boat may obviously need to be modified to reflect the size and available space. The boat will be secured at three points during sampling to minimize drifting.

A pre-startup site visit will be conducted by members of the identified field team in an effort to identify on shore sample processing locations as well as access routes to these locations, provide upfront notices to adjacent facilities/operations concerning scheduled activities within the facility, to the operating group and to determine if specialized barrier, etc. coordination will be required in Zone 4 and Outer Pier 1 will be necessary to control traffic (vehicle and boating) patterns or schedule locations for off hours.

9.2 CONTAMINATION REDUCTION ZONE

The contamination reduction zone (CRZ) will be a buffer area between the exclusion zone and any area of the site where contamination is not suspected. Decontamination will be facilitated in the following manner:

Reusable Equipment – Sediment sample cores will be flushed with river water from the Thames River. The visible sediments will be removed. If it is necessary the external corer will be washed in soap and water on board. These waters however may be retained for IDW management or discharged off the side of the boat. The acetate liners containing the sediment samples will be removed for processing. These will then be rinsed and bagged for disposal.

9.3 SUPPORT ZONE

The support zone for this project will include a staging area where site vehicles will be parked, equipment will be unloaded, and where food and drink containers will be maintained. The support zones will be established at areas of the site away from potential exposure to site contaminants during normal working conditions or foreseeable emergencies. These areas will be near:

- Sample processing areas
- Launch areas
- And those areas identified for Emergency Action Planning purposes

9.3.1 Sanitation and Break Areas

This section will address the following items:

- Toilets
- Potable water
- Showers and change rooms
- Break Areas

9.3.1.1 Toilets

One toilet will be provided for every 20 people or provisions for toilets will be determined for each work area. The toilets will be unisex and will have locking doors. The toilet provided will either be a chemical toilet and service provider or the flush toilet readily accessible at a predetermined approved location at

the site where work is being conducted. If necessary the FOL will arrange to have toilets moved or delivered and picked up when work is occurring at other sites.

It is unknown whether the boat is equipped with portable facilities or not. In this case, persons will be transported to shore using the skiff where pre-arrangements have been made or the chemical toilets have been placed.

9.3.1.2 Potable Water

Potable water as well as electrolyte balance sports drinks such as Gatorade will be provided to the field crews for fluid replacement, as it is necessary under conditions of ambient temperature extremes. Storage and dispensing will proceed as follows:

- Single dispensing large containers will be clean and replenished daily.
- Containers will clearly marked as to their contents (Potable Water – Drinking Water Only; Gatorade, etc.).
- Dispensing locations will be placed in identified break areas within the support zone. The most likely location will be at a support vehicle staged near the work area. This will serve as an area for cooling or warming as well as an identified food and drink consumption area. Again during sampling activities the persons will move to an area on the boat designated as a clean area for water and/or food consumption. Personnel will not wear soiled PPE in this area and there will be no potential for ingestion of contaminants potentially collected during sediment sampling.
- If larger containers are used, dispensing cups will be provided.
- The coolers used for storage of potable drinks and cups will be stored in plastic bags away from potentially contaminating materials when not in use.

9.3.1.3 Showers and Change Rooms

Based on this scope and duration of this project shower facilities and locker rooms will not be required.

9.3.1.4 Break Areas

Given the location and the time of the year structured suitable locations for work breaks and cooling regimens will reflect the ambient conditions anticipated for that time of the year. Portable shelters such as

canopies can be provided for protection from the sun on the boat and sample processing areas as well as to provide a suitable area to permit cooling in a hot environment. This may also be suitable for conducting certain field activities within a static position such as monitoring well sampling and traffic control.

9.4 ACTIVITY HAZARD ANALYSIS

Exclusion Zone work conducted in support of this project will be performed using AHAs to guide and direct field crews on a task by task basis. The AHAs are located in Attachment IV of this HASP. It is the SSO's responsibility to finalize the AHAs where necessary based on current, existing conditions the day the task is to be performed, and then review that completed document with the field crew before commencing that activity. See Figure 8-2, Pre-task Tailgate briefing session. This will ensure that site-specific considerations and changing conditions are appropriately incorporated into the AHA, provide the SSO with a structured format for conducting the tailgate sessions, as well will also give personnel an opportunity to ask questions and make suggestions. The AHAs will require the signature of the FOL or SSO as the issuing authorization. Personnel participating will also initial to indicate they have participated in the review of the AHA and are aware of the requirements stipulated in that document.

9.5 SITE VISITORS

Site visitors to the site must be escorted and restricted from approaching any work areas where they could be exposed to hazards from Tetra Tech operations. If a visitor has authorization from the client and from the Tetra Tech TOM to approach our work areas, the FOL must assure that the visitor first provides documentation indicating that he/she/they have successfully completed the necessary OSHA introductory training, receive site-specific training from the SSO, and that they have been physically cleared to work on hazardous waste sites.

9.6 SITE SECURITY

Site security will be accomplished using Tetra Tech field personnel. Tetra Tech will retain complete control over active operational areas. As this activity takes place at a Navy facility, the gate controlling public access, the first line of security. Tetra Tech will control exclusion zones boundaries protecting facility personnel from the physical and potential chemical hazards associated with our operation that may put them at risk. The Base Contact will serve as a focal point for base personnel, interested parties, and serve as the final line of security and the primary enforcement contact.

Personnel on the boat will be limited to essential personnel necessary to conduct the sediment core sampling.

9.7 SITE MAP

An existing site map will be used by the FOL to direct sample personnel and the operator to the selected location. The site map will be updated with physical features potentially pertinent to relocating the sample location or conditions pertinent to sample collection (scoured area, etc.).

The site map will be generated and adjusted as site conditions change indicating access points; contact information and emergency evacuation points as this information evolves.

9.8 BUDDY SYSTEM

Personnel engaged in on site activities will practice the "buddy system" to ensure the safety of personnel involved in this operation. Where they are separated from visibly seeing one another, wireless communication contact will be employed.

Obviously this will not be the case for the boat crew or onsite support crew who will work in relatively close proximity limited by the boat size and processing site configuration.

9.9 MATERIAL SAFETY DATA SHEET (MSDS) REQUIREMENTS

Tetra Tech and subcontractor personnel will provide MSDSs for chemicals brought on site. The contents of these documents will be reviewed by the SSO with the user(s) of the chemical substances prior to any actual use or application of the substances on site. A chemical inventory of the chemicals used on site will be developed, See Section 5.0 of the HSGM for direction in the implementation of the onsite program. The MSDSs will then be maintained in a central location (i.e., temporary office) and will be available for anyone to review upon request. It is recommended that additional copies be maintained with the materials or in the area of use.

9.10 COMMUNICATION

Where permitted two-way radio communication will be employed between onshore and boat crews. External communication will be accomplished by using the cellular telephone approved by NSB-NLON.

External communication will primarily be used for the purpose of resource and emergency resource communications. Personnel will enter emergency contact numbers into their cell phones as well as that of the FOL and the SSO. For each site at least two persons will have adequate signals in order to reach emergency services should it be required.

10.0 SPILL CONTAINMENT PROGRAM

10.1 SCOPE AND APPLICATION

It is not anticipated that bulk hazardous materials (over 55-gallons) will be generated or handled at any given time as part of this scope of work. It is also not anticipated that such spillage would constitute a danger to human health or the environment. However, as the job progresses, some potential may exist for accumulating Investigative Derived Wastes (IDW) such as decontamination fluids, sediment cuttings, disposable sampling equipment (acetate liners) and PPE.

10.2 POTENTIAL SPILL AREAS

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

- Boat – During the Boat inspection potential leak points associated with fuel storage or delivery will be examined for potential leak points.
- Resource deployment – Temporary fuel cans will be safety cans and will be maintained in secondary containment to avoid potential spills and accidental release.
- Waste transfer – Decontamination will include water rinse of the sediment core components that will not contact the sample. If the components cannot be cleaned to visible clean, then soap and water wash and low pressure rinse will be employed. These materials shall be containerized in UN1A2 drum for characterization and disposal. Sediments not used in the samples can be released underwater. River water will be used to flush equipment of visible sediments. Brushes will be used to remove stubborn materials.
- Central staging

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

Note: During sample processing the acetate liners will be cleaned of visible materials as well as surgeons gloves will be rinsed of visible materials and disposed of as general refuse.

10.3 LEAK AND SPILL DETECTION

To establish an early detection of potential spills or leaks:

- Boat will be inspected before each days use.
- A periodic walk-around by the personnel staging or disposing of drums area will be conducted during working hours to visually determine that storage vessels are not leaking.
- Spill provisions will be immediately available onsite in order to respond quickly if a leak is detected.

The leak will be collected and contained using absorbents such as Oil-Dry or absorbent pads. Inspections will be documented in the project logbook.

10.4 PERSONNEL TRAINING AND SPILL PREVENTION

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

10.5 SPILL PREVENTION AND CONTAINMENT EQUIPMENT

The following represents the types of equipment that should be maintained at the staging areas for the purpose of supporting this Spill Prevention/Containment Program.

- Oil pads or other non combustible absorbent (Oil-dry)
- Drums (55-gallon U.S. DOT I7H or U.N.1A2)
- Shovels, rakes, and brooms
- Container labels

10.6 SPILL CONTROL PLAN

This section describes the procedures the Tetra Tech field crew members will employ upon the detection of a spill or leak.

- Notify the SSO or FOL immediately upon detection of a leak or spill. Activate incipient response measures.

- Take immediate actions to stop the leak.
 - Fuel line/fuel tank – Oil spill pads or Oil Dry to stem the leak. Employ tape or other materials. Remove the boat from the water and repair.

 - Drums – Stem the leak by plugging or patching the container or raising the leak to the highest point in the vessel. Spread the absorbent material in the area of the spill, covering it completely.
- 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.
- Re-containerize spills, including 2-inch of top cover impacted by the spill. Await test results for treatment or disposal options.
- If the leak or release cannot be contained, the FOL will engage emergency alerting procedures, remove non-essential personnel.
- Engage site control by establishing security perimeter.

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

11.0 CONFINED-SPACE ENTRY

It is not anticipated, under the proposed scope of work, that confined space and permit-required confined space activities will be conducted. **Therefore, personnel under the provisions of this HASP are not allowed, under any circumstances, to enter confined spaces.**

A confined space is defined as a space that:

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

Additionally, a Permit-Required Confined Space is a confined space that has one or more of the following characteristics:

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

For further information on confined space, consult the PHSO. If confined space operations are to be performed as part of the scope of work, detailed procedures and training requirements will have to be addressed requiring this document to be modified.

12.0 MATERIALS AND DOCUMENTATION

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

- A complete signed copy of this HASP
- Health and Safety Guidance Manual
- Incident Reports
- Medical Data Sheets
- Material Safety Data Sheets for chemicals brought on site, including decontamination solutions, fuels, sample preservatives, calibration gases, etc.
- A full-size OSHA Job Safety and Health Poster (posted in the site trailer)
- Training/Medical Surveillance Documentation Form (Blank)
- Emergency Reference Form (Section 2.0, extra copy for posting)
- Directions to the Hospital

In addition, the boats must have the following on board:

- One personal flotation device per person
- A sound producing device such as an air horn or whistle which can be heard one half mile
- Documentation of approval of boating course or passing of the Connecticut challenge exam
- Any required Connecticut Department of Environmental Protection decals
- First-aid kit
- Fire extinguisher
- A complete signed copy of this HASP
- A completed Safety Boating Checklist (Marine Safety Plan, Attachment I)

12.1 MATERIALS TO BE POSTED AT THE SITE

The following documentation is to be posted or maintained at the site for quick reference purposes. In situations where posting these documents is not feasible (such as no office trailer), these documents should be separated and be immediately accessible.

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

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

The OSHA Job Safety & Health Protection Poster (posted) - This poster should be conspicuously posted in places where notices to employees are normally posted, as directed by 29 CFR 1903.2 (a)(1). Each FOL shall ensure that this poster is not defaced, altered, or covered by other material. The law also states that reproductions or facsimiles of the poster shall be at least 8 1/2 by 14 inches with 10 point type.

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

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

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

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

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

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

13.0 ACRONYMS / ABBREVIATIONS

ACGIH	American Conference of Governmental Industrial Hygienists
AHA	Activity Hazard Analysis
a.m.	Ante meridiem
Aux	Auxiliary
CFR	Code of Federal Regulations
CIH	Certified Industrial Hygienist
CLEAN	Comprehensive Long-Term Environmental Action Navy
COCs	Contaminants of Concern
CPR	Cardio-Pulmonary Resuscitation
CPWO	Certified Personal Water Craft Operator
CSP	Certified Safety Professional
CTO	Contract Task Order
dB	Decibels
DEP	Department of Environmental Protection
DEET	N,N-diethyl-meta-toluamide
DOT	Department of Transportation
DRI	Direct Reading Instrument
etc.	etcetera
FOL	Field Operations Leader
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
H&S	Health and Safety
HIPPA	Health Insurance Portability and Privacy Act
HRTW	Hazardous Radioactive Toxic Waste
HSGM	Health and Safety Guidance Manual
HSM	Health and Safety Manager
HSR	Health and Safety Representative
IARC	International Agency for Research on Cancer
IDW	Investigation Derived Waste
Inc.	Incorporated
IR	Incident Report
MARPOL	Marine Pollution
MSDSs	Materials Safety Data Sheets
mg/kg	milligram per kilogram
mg/m ³	milligram per cubic meter

N/A	Not Available
NIOSH	National Institute for Occupational Safety and Health
NSB-NLON	Naval Submarine Base - New London
OSH	Occupational Safety and Health
OSHA	Occupational Safety and Health Administration (U.S. Department of Labor)
PAHs	Polyaromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
P.E.	Professional Engineer
PEL	Permissible Exposure Limit
PFD	Personal Flotation Device
PHSO	Project Health and Safety Officer
PID	Photo-Ionization Detector
PM	Project Manager
p.m	post meridiem
PPE	Personal Protective Equipment
QC	Quality Control
RCA	Root Cause Analysis
RPM	Remediation Project Manager
SBC	Safe Boating Certification
SOPs	Standard Operating Procedures
SSO	Site Safety Officer
STEL	Short Term Exposure Limit
TBD	To be determined
TCLP	Toxicity Characteristics Leaching Procedure
Tetra Tech	Tetra Tech NUS, Inc.
TOTAL	"Tracking and Optimizing Tool for Analyzing Losses"
TPH	Total Petroleum Hydrocarbon
TWA	Time Weighted Average
USCG	United States Coast Guard
U.S.	United States
#	Number

ATTACHMENT I
MARINE SAFETY PLAN

MARINE SAFETY PERFORMANCE PLAN

The following text describes measures to be employed to protect Tetra Tech and subcontractor employees during VibraCore sampling activities.

USCG Flotation Device Types

Use the following information to determine the proper type of USCG PFD.

Device	Type	Description
Off Shore Life Jacket	Type I 22lbs buoyancy	Best in rough or open waters. Floats best especially in long time rescue. Will turn unconscious upright. Bulky but highly visible.
Near Shore Buoyant Vest	Type II, 15.5lbs buoyancy	Good in calmer waters. Will turn most unconscious face-up. Less bulky. Not for long time rescue.
Flotation Aid	Type III 15.5lbs buoyancy	Most comfortable device offering more freedom of movement. Not intended for rough water. Unconscious may end up face-down
Throwable Devices	Type IV	Throwable devices for calm waters with heavy boat traffic where help is always close. Not for unconscious, non-swimmers or long hours. Good backups for the other devices.

USCG Boat Regulations

The operators of vessels registered in, or who own property in, Connecticut must successfully complete an approved boating course or pass the Connecticut challenge exam. Boats using a motor must be registered. If the boat is to be used for extended periods (>90 days) then it must also be registered in Connecticut.

Certain bodies of water in Connecticut may have local restrictions as to type and size of watercraft or motor horsepower, restricted use areas, boat speed, and times for use. During this sediment sampling, this water craft will not be permitted to approach any area near the submarines unless otherwise approved and escorted. Check with the local authorities for these additional restrictions.

The USCG requires that boats have the following equipment on board:

- One personal flotation device per person
- A sound producing device such as an air horn or whistle which can be heard one half mile.

Vessel Registration

All vessels, whether commercial or recreational, must be registered if it is equipped with any kind of primary or auxiliary mechanical propulsion; and currently documented with the USCG. An owner of a federally documented vessel, though exempt from state numbering requirements, shall apply to the Connecticut Department of Environmental Protection for documented use decals, and is subject to the state excise tax requirements if used in Connecticut for greater than 90 day period.

Reckless and Negligent Operation

Negligent or grossly negligent operation of a vessel which endangers lives and/or property is prohibited by law. A civil penalty may be imposed by the USCG for this offense under federal laws. An operator may be subjected to a fine of up to \$5,000 and or imprisonment for up to one year, or both.

Some examples of actions that may constitute negligent or grossly negligent operation include but are not limited to:

- Operating in a swimming area
- Operating under the influence of alcohol or drugs.
- Excessive speed in the vicinity of other boats or in dangerous waters.
- Hazardous water skiing practices
- Bowriding, also riding on seatback, gunwale or transom.

Termination of Use

A USCG official observing a boat being operated in an unsafe condition and who determines that an especially hazardous condition exists may direct the operator to take immediate steps to correct the condition, including returning to port. Termination for unsafe use may be imposed for, but is not limited to:

- Insufficient number of USCG approved Personal Flotation Devices.
- Insufficient fire extinguishers.
- Overloading beyond manufacturer's recommended safe loading capacity.
- Improper navigation light display.
- Ventilation requirements for tank and engine spaces not met.
- Fuel leakage.
- Fuel in bilges.
- Improper backfire flame control.

Boating Accident Reports

The operator of any boat involved in an accident must stop, render assistance, and offer identification. An accident report must be made within 48 hours if:

- A person dies within 24 hours;
- A person loses consciousness or receives medical treatment beyond first aid or is disabled more than 24 hours;
- A person disappears from the vessel under circumstances that indicate death or injury.

Accidents must be reported within 10 days if damage to the vessels and other property totals more than \$500.00 or an earlier report is not required. Running aground or hitting a fixed or floating object is considered a boating accident.

Rendering Assistance

Federal law requires the operator of a vessel to provide assistance that can be safely provided to any individual in danger on the water. Persons who fail to provide assistance may be subject to fine or imprisonment.

As this activity will take place from a boat hazards include:

- Boating accidents – Injury, drowning
- Sinking - Drowning
- Falling overboard - Drowning

Standardized measures will be employed to control hazards of this nature, they include:

- Boating accidents –
 - A float plan will be provided to the Harbor Master indicating the area of sampling and hours of operation. Traffic will be notified and directed away from this activity to the extent possible. The Harbor Master may also restrict sampling due to planned activities such as launches, etc.
 - The boats will be equipped with emergency equipment as previously indicated including
 - Emergency radios
 - Sound producing devices – such as an air horn or whistle
 - Personnel will have USCG approved Flotation Device, Type II appropriately sized and worn during activities over water.
 - A Type IV Throwable Ring with 90-Feet of line will be available as well as an extraction hook.

- Sinking – To prevent sinking
 - The boat will be inspected by the Captain or designated crew member using the Boat Inspection Checklist (found in this HASP) or similar document.
 - The Captain or designated crew member will ensure that the capacity of the boat with crew and equipment is not overloaded.
 - Movement into areas unexplored waters will be done so slowly and methodically in order to provide a visual assessment of the bottom ahead of the boat but also use probes to examine for stumps and or debris that could cause damage to the boat.

- Falling overboard – Preventative measures include the following
 - The boat will be equipped in areas where possible with a suitable handrail. Gates will be kept closed when not in use, any floor openings will also be closed and/or guarded to prevent persons from falling in.
 - Personnel will have Type II USCG Approved Flotation Devices (appropriately sized); a Type IV Throwable Ring will also be immediately available equipped with 90-Feet of line.
 - A body hook is recommended. The boat will be equipped with a ladder to allow persons to get back into the boat should they fall out.
 - A skiff will also be provided to retrieve and extract persons who have fallen in.
 - During certain activities, such as capping the corer prior to it breaking the water surface, the crew member will be tied off using fall protection and a positioning lanyard.

Boating Education/Qualification - Connecticut.

Connecticut does not require a boating license for boat operators. However, operators need to have a Safe Boating Certificate (SBC) or a Certificate of Personal Watercraft Operation (CPWO). The regulatory authority for the certificate is the [Department of Environmental Protection](#) (DEP).

- There is no restriction on the age of boat operators. If you are under 16 years of age, you can operate a boat under the direct, onboard supervision of an adult who has had their safety certificate or CPWO for at least two years.

EXEMPTIONS

- The following persons are exempt from the above requirements:
 - Boat operators possessing a valid boaters' license issued by the U.S Coast Guard or the Canadian Government.
 - Operators renting a motorboat for 14 days or lesser. The boat rental company must instruct such operators on how to operate the boat safely and give them a summary of the boating law.

Safety practices – Onboard.

It will be the responsibility of the Captain or designated crew member(s) to instruct personnel concerning

- Location and operation of emergency equipment
- Safe practices to be employed while onboard to ensure your safety and that of others onboard. This instruction will include prohibited practices.
- Areas onboard that will be restricted during VibraCore sampling.
- The use of personal floatation devices.

Safety equipment. To support emergency prevention, the following safety equipment will be maintained in acceptable working condition. These include

- Fire Extinguisher (minimum – 5A:60:B:C) Personnel will be suitably trained in the use of these devices)
 - P.A.S.S -
 - Pull pin
 - Aim at the base of the fire
 - Squeeze the handle
 - Sweep side to side
 - The fire extinguisher will be inspected once/month to ensure adequate pressure; tamper devices are in place; no physical damage; immediately accessible; location is marked.
- Emergency alerting sound producing device (air horn or whistle)
- Marine radio to permit communication to other boats and the harbor master.
- Personal floatation device – One /person correctly size
 - One throwable Type IV device

Compliance with navigation rules.

The Captain will adhere to USCG navigation rules and regulations. A copy of these rules and regulations will be maintained onboard for reference.

Furthermore, a float plan will be communicated with the Harbor Master. The Captain will adhere to this plan or seek approval for modification with the Harbor Master.

Sample locations in high traffic areas will be completed during off traffic hours. This of course will be coordinated with the Harbor Master responsible for controlling traffic.

Performance Measurement and Reporting

As indicated earlier the incidents and near misses will be recorded to permit cause and affect investigation to prevent the possible reoccurrence. Additionally, the incidents resulting in injury, property damage, and/or environmental damage will be reported to the USCG for additional investigation.

Manufacturer Compliance Efforts.

The Captain will ensure manufacturer requirements are strictly adhered to including:

- Insuring capacity requirements are not surpassed. This includes the collective weight of crew and equipment.
- No modifications to the fuel systems are permitted without manufacturer approval.
- Enhancements to the framing system to support VibraCore sampling will not retract from the boats structural integrity. It is strongly encouraged that these be done in accordance with manufacturer specification or according to specifications defined by a licensed engineer.

Safety Inspection of the Boat or Vessel.

Tetra Tech SSO will ensure the boat has been inspected and is seaworthy. It will be the responsibility of the SSO or qualified designee to complete the Vessel Inspection Checklist to support this measure.

TETRA TECH, INC.
SAFE BOATING CHECKLIST

Owner/Operator Name: _____

Registration Number _____

Location _____ County: _____ State: _____ HIN: _____

Length of Boat: <16 16-25 26-39 40-65 > 65

Area of Operations: Inland Coastal

Powered by: Gas Diesel Sail Other

Type: PWC Open Cabin Other

VESSEL SAFETY CHECK REQUIREMENTS				RECOMMENDED AND DISCUSSION ITEMS			
Item	Yes	No	NA	Item	Yes	No	NA
1. Display of Numbers				(While encouraged, items below are not requirements)			
2. Registration / Documentation				I. Marine Radio			
3. Personal Flotation Devices (PFD)				II. Dewatering Device & Backup			
4. Visual Distress Signals (VDS)				III. Mounted Fire Extinguishers			
5. Fire Extinguishers				IV. Anchor & Line for Area			
6. Ventilation				V. First Aid and PIW Kits (**over)			
7. Backfire Flame Control				VI. Inland Visual Distress Signals			
8. Sound Producing Devices / Bell				VII. Capacity / Cert. of Compliance			
9. Navigation Lights				VIII. Discussion Items: (as applies)			
10. Pollution Placard				a. Accident reporting / owner responsibility			
11. MARPOL Trash Placard				b. Offshore operations			
12. Marine Sanitation Devices				c. Nautical charts / navigation aids			
13. Navigation Rules				d. Survival tips / first Aid			
14. State and/ or Local Requirements				e. Fueling / fuel management			
15. Overall Vessel Condition: (as applies)				f. Float plan / weather & sea conditions			
a. Deck free of hazards / clean bilge				g. Insurance considerations			
b. Electrical / fuel systems				h. Boating check list			
c. Galley / heating systems				i. Safe boating classes			

This checklist has been modified for use from the United States Coast Guard Auxiliary Vessel Safety Check (VSC) Program. USCG AUX. Form 204 (7-2000)

Explanation of Required Items

- ❑ **1. NUMBERING:** The boat's registration number must be permanently attached to each side of the forward half of the boat. Characters must be plain, vertical, block style, not less than three (3) inches high, and in a color contrasting with the background. A space or hyphen must separate the letters from the numbers.

- ❑ **2. REGISTRATION / DOCUMENTATION:** Registration or Documentation papers must be on board and available. Documentation numbers must be permanently marked on a visible part of the interior structure. The documented boat's name and hailing port must be displayed on the exterior hull in letters not less than 4 inches in height.

- ❑ **3. PERSONAL FLOTATION DEVICES (PFDs):** Acceptable PFDs (also known as Life Jackets) must be U.S. Coast Guard approved and in good, serviceable condition. A wearable PFD of suitable size is required for the each person on the boat. Wearable PFDs shall be "*readily accessible.*" Boats 16 Feet or longer, must also have one Type IV (throwable) device, which shall be "*immediately available.*" PFDs shall NOT be stored in unopened plastic packaging.

- ❑ **4. VISUAL DISTRESS SIGNALS:** Boats 16 feet and over or are required to carry a minimum of either:
 - 1) three day and three night pyrotechnic devices
 - 2) one day non-pyrotechnic device (flag) and one night non-pyrotechnic device (auto SOS light)
 - 3) a combination of 1) and 2).
 Boats less than 16 feet need only carry night visual distress signals when operating from sunset to sunrise. It is recommended, but not required, that boats operating on inland waters should have some means of making a suitable day and night distress signal. The number and type of signals is best judged by considering conditions under which the boat will be operating.

- ❑ **5. FIRE EXTINGUISHERS:** Fire extinguishers are required if one of the following conditions exists:
 - 1) Inboard engine(s)
 - 2) Double bottom hulls not completely sealed or not completely filled with flotation materials
 - 3) Closed living space
 - 4) Closed stowage compartments that contain flammable materials or
 - 5) Permanently installed fuel tanks. Boats less than 26 feet, and propelled by outboard motors are NOT required to have fire extinguishers unless one or more of the conditions (2-5) listed above applies.

Coast Guard Classification of Fire Extinguishers		
Classification (type size)	B-I	B-II
Foam (minimum gallons)	1.25	2.5
Carbon Dioxide (minimum lbs.)	4	15
Dry Chemical (minimum lbs.)	2	10
Halon (minimum lbs.)	2.5	10

NOTE: Fire extinguishers must be readily accessible and verified as serviceable.

MINIMUM NUMBER OF EXTINGUISHERS REQUIRED		
Boat Length	No Fixed System	With Fixed System
Less than 26'	one B-1	0
26' to less than 40'	two B-1 or one B-2	one B-1
40' to 65'	three B-1 or one B-1 & one B-2	two B-1 or one B-2

- ❑ **6. VENTILATION:** Boats with gasoline engines in closed compartments, built after 1 August 1980 must have a powered ventilation system. Those built prior to that date must have natural or powered ventilation. Boats with closed fuel tank compartments built after 1 August 1978 must meet requirements by displaying a “certificate of compliance.” Boats built before that date must have either natural or powered ventilation in the fuel tank compartment.
- ❑ **7. BACKFIRE FLAME ARRESTER:** Gasoline powered inboard/outboard or inboard motor boats must be equipped with an approved backfire flame control device.
- ❑ **8. SOUND PRODUCING DEVICES:** To comply with Navigation Rules and for distress signaling purposes boats must carry a sound producing device (whistle, horn, siren, etc.) capable of a 4-second blast audible for ½ mile. Boats larger than 39.4 ft. are also required to have a bell (see Navigation Rules.)
- ❑ **9. NAVIGATION LIGHTS:** Boats must be able to display navigation lights between sunset and sunrise and in conditions of reduced visibility. Boats 16 feet or more in length must have properly installed, working navigation lights and an all-around anchor light capable of being lit independently from the red/green/white “running” lights.
- ❑ **10. POLLUTION PLACARD:** Boats 26 feet and over with a machinery compartment must display an oily waste “pollution” placard.
- ❑ **11. MARPOL TRASH PLACARD:** Boats 26 feet and over in length, operating in U.S. navigable waters, must display a “MARPOL” trash placard. Oceangoing boats 40 feet and over must also have a written trash disposal plan available onboard.
- ❑ **12. MARINE SANITATION DEVICE:** Any installed toilet must be a Coast Guard approved device. Overboard discharge outlets must be capable of being sealed.
- ❑ **13. NAVIGATION RULES:** Boats 39.4 feet and over must have on board a current copy of the Navigation Rules.
- ❑ **14. STATE AND LOCAL REQUIREMENTS:** A boat must meet the requirements of the state in which it is being examined.
- ❑ **15. OVERALL BOAT CONDITION: As it applies to this Vessel. Including, but not limited to:**
 - a. Deck free of hazards and clean bilge** - The boat must be free from fire hazards, in good overall condition, with bilges reasonably clean and visible hull structure generally sound. The use of automobile parts on boat engines is not acceptable. The engine horsepower must not exceed that shown on the capacity plate.
 - b. Electrical and Fuel Systems:** The electrical system must be protected by fuses or manual reset circuit breakers. Switches and fuse panels must be protected from rain or water spray. Wiring must be in good condition, properly installed and with no exposed areas or deteriorated insulation. Batteries must be secured and terminals covered to prevent accidental arcing. If installed, self-circling or kill switch mechanism must be in proper working order.

Fuel Systems - Portable fuel tanks (normally 7 gallon capacity or less) must be constructed of non-breakable material and free of corrosion and leaks. Vents must be capable of being closed. The tank must be secured and have a vapor-tight, leak-proof cap. Each permanent fuel tank must be properly ventilated.
 - c. Galley and Heating Systems** - System and fuel tanks must be properly secured with no flammable materials nearby.

ATTACHMENT II
INCIDENT REPORT FORM

Report Date	Report Prepared By	Incident Report Number
INSTRUCTIONS:		
All incidents (including those involving subcontractors under direct supervision of Tetra Tech personnel) must be documented on the IR Form.		
Complete any additional parts to this form as indicated below for the type of incident selected.		
TYPE OF INCIDENT (Check all that apply)	Additional Form(s) Required for this type of incident	
Near Miss (No losses, but could have resulted in injury, illness, or damage)	<input type="checkbox"/> Complete IR Form Only	
Injury or Illness	<input type="checkbox"/> Complete Form IR-A; Injury or Illness	
Property or Equipment Damage, Fire, Spill or Release	<input type="checkbox"/> Complete Form IR-B; Damage, Fire, Spill or Release	
Motor Vehicle	<input type="checkbox"/> Complete Form IR-C; Motor Vehicle	
INFORMATION ABOUT THE INCIDENT		
Description of Incident		
<hr/> <hr/> <hr/>		
Date of Incident	Time of Incident	
	_____ AM <input type="checkbox"/> PM <input type="checkbox"/> OR Cannot be determined <input type="checkbox"/>	
Weather conditions at the time of the incident	Was there adequate lighting?	
	_____ Yes <input type="checkbox"/> No <input type="checkbox"/>	
Location of Incident		
_____ Was location of incident within the employer's work environment? Yes <input type="checkbox"/> No <input type="checkbox"/>		
Street Address	City, State, Zip Code and Country	
<hr/>		
Project Name	Client:	
<hr/>		
Tt Supervisor or Project Manager	Was supervisor on the scene?	
	Yes <input type="checkbox"/> No <input type="checkbox"/>	
WITNESS INFORMATION (attach additional sheets if necessary)		
Name	Company	
<hr/>		
Street Address	City, State and Zip Code	
<hr/>		
Telephone Number(s)		
<hr/>		

CORRECTIVE ACTIONS				
Corrective action(s) immediately taken by unit reporting the incident:				
<div style="border-bottom: 1px solid black; margin-bottom: 5px;"></div> <div style="border-bottom: 1px solid black; margin-bottom: 5px;"></div> <div style="border-bottom: 1px solid black;"></div>				
Corrective action(s) still to be taken (by whom and when):				
<div style="border-bottom: 1px solid black; margin-bottom: 5px;"></div> <div style="border-bottom: 1px solid black; margin-bottom: 5px;"></div> <div style="border-bottom: 1px solid black;"></div>				
ROOT CAUSE ANALYSIS LEVEL REQUIRED				
Root Cause Analysis Level Required: Level - 1 <input type="checkbox"/> Level - 2 <input type="checkbox"/> None <input type="checkbox"/>				
Root Cause Analysis Level Definitions				
Level - 1	<p>Definition: A Level 1 RCA is conducted by an individual(s) with experience or training in root cause analysis techniques and will conduct or direct documentation reviews, site investigation, witness and affected employee interviews, and identify corrective actions. Activating a Level 1 RCA and identifying RCA team members will be at the discretion of the Corporate Administration office.</p> <p>The following events may trigger a Level 1 RCA:</p> <ul style="list-style-type: none"> ▪ Work related fatality ▪ Hospitalization of one or more employee where injuries result in total or partial permanent disability ▪ Property damage in excess of \$75,000 ▪ When requested by senior management 			
Level - 2	<p>Definition: A Level 2 RCA is self performed within the operating unit by supervisory personnel with assistance of the operating unit HSR. Level 2 RCA will utilize the 5 Why RCA methodology and document the findings on the tools provided.</p> <p>The following events will require a Level 2 RCA:</p> <ul style="list-style-type: none"> ▪ OSHA recordable lost time incident ▪ Near miss incident that could have triggered a Level 1 RCA ▪ When requested by senior management 			
Complete the Root Cause Analysis Worksheet and Corrective Action form. Identify a corrective action(s) for each root cause identified within each area of inquiry.				
NOTIFICATIONS				
Title	Printed Name	Signature	Telephone Number	Date
Project Manager or Supervisor				
Site Safety Coordinator or Office H&S Representative				
Operating Unit H&S Representative				
Other: _____				

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



INSTRUCTIONS:

Complete all sections below for incidents involving injury or illness.
Do NOT leave any blanks.
Attach this form to the IR FORM completed for this incident.

Incident Report Number: (From the IR Form)

EMPLOYEE INFORMATION

Company Affiliation

Tetra Tech Employee? TetraTech subcontractor employee (directly supervised by Tt personnel)?

Full Name Company (if not Tt employee)

Street Address, City, State and Zip Code

Address Type

Home address (for Tt employees)

Business address (for subcontractors)

Telephone Numbers

Work: _____ Home: _____ Cell: _____

Occupation (regular job title)

Department

Was the individual performing regular job duties?

Time individual began work

Yes No _____ AM PM OR Cannot be determined

Safety equipment

Provided? Yes No

Type(s) provided: Hard hat Protective clothing

Used? Yes No If no, explain why

Gloves High visibility vest

Eye protection Fall protection

Safety shoes Machine guarding

Respirator Other (list)

NOTIFICATIONS

Name of Tt employee to whom the injury or illness was first reported

Was H&S notified within one hour of injury or illness?

Yes No

Date of report

H&S Personnel Notified

Time of report

Time of Report

If subcontractor injury, did subcontractor's firm perform their own incident investigation?

Yes No If yes, request a copy of their completed investigation form/report and attach it to this report.

INJURY / ILLNESS DETAILS

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

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

Describe the object or substance that directly harmed the individual: Examples: "Concrete floor"; "Chlorine"; "Radial Arm Saw". If this question does not apply to the incident, write "Not Applicable".

MEDICAL CARE PROVIDED

Was first aid provided at the site: Yes No If yes, describe the type of first aid administered and by whom?

Was treatment provided away from the site: Yes No If yes, provide the information below.

Name of physician or health care professional	Facility Name
Street Address, City State and Zip Code	Type of Care?
 	Was individual treated in emergency room? Yes <input type="checkbox"/> No <input type="checkbox"/>
 	Was individual hospitalized overnight as an in-patient? Yes <input type="checkbox"/> No <input type="checkbox"/>
Telephone Number	Did the individual die? Yes <input type="checkbox"/> No <input type="checkbox"/> If yes, date: _____
 	Will a worker's compensation claim be filed? Yes <input type="checkbox"/> No <input type="checkbox"/>

NOTE: Attach any police reports or related diagrams to this report.

SIGNATURES

I have reviewed this report and agree that all the supplied information is accurate

Affected individual (print)	Affected individual (signature)	Telephone Number	Date

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



INSTRUCTIONS:

Complete all sections below for incidents involving property/equipment damage, fire, spill or release. Do NOT leave any blanks. Attach this form to the IR FORM completed for this incident.

Incident Report Number: (From the IR Form)

TYPE OF INCIDENT (Check all that apply)

Property Damage Equipment Damage Fire or Explosion Spill or Release

INCIDENT DETAILS

Results of Incident: Fully describe damages, losses, etc.

Response Actions Taken:

Responding Agency(s) (i.e. police, fire department, etc.)

Agency(s) Contact Name(s)

DAMAGED ITEMS (List all damaged items, extent of damage and estimated repair cost)

Item:	Extent of damage:	Estimated repair cost

SPILLS / RELEASES (Provide information for spilled/released materials)

Substance	Estimated quantity and duration	Specify Reportable Quantity (RQ)
		_____ Exceeded? Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>

FIRES / EXPLOSIONS (Provide information related to fires/explosions)

Fire fighting equipment used? Yes No If yes, type of equipment: _____

NOTIFICATIONS

Required notifications	Name of person notified	By whom	Date / Time
Client: _____ Yes <input type="checkbox"/> No <input type="checkbox"/>			
Agency: _____ Yes <input type="checkbox"/> No <input type="checkbox"/>			
Other: _____ Yes <input type="checkbox"/> No <input type="checkbox"/>			

Who is responsible for reporting incident to outside agency(s)? Tt Client Other Name: _____

Was an additional written report on this incident generated? Yes No If yes, place in project file.



INSTRUCTIONS:

Complete all sections below for incidents involving motor vehicle accidents. Do NOT leave any blanks. Attach this form to the IR FORM completed for this incident.

Form with sections: Incident Report Number, INCIDENT DETAILS (Name of road, County, City, State, Police/Ambulance response), VEHICLE INFORMATION (Vehicle 1 and 2 details, damage, insurance, agent info).



DRIVER INFORMATION						
Vehicle Number 1 – Tetra Tech Vehicle			Vehicle Number 2 – Other Vehicle			
Driver's Name				Driver's Name		
Driver's Address				Driver's Address		
Phone Number				Phone Number		
Date of Birth				Date of Birth		
Driver's License #				Driver's License #		
Licensing State				Licensing State		
Gender		Male <input type="checkbox"/> Female <input type="checkbox"/>		Gender		Male <input type="checkbox"/> Female <input type="checkbox"/>
Was traffic citation issued to Tetra Tech driver? Yes <input type="checkbox"/> No <input type="checkbox"/>			Was traffic citation issued to driver of other vehicle? Yes <input type="checkbox"/> No <input type="checkbox"/>			
Citation #				Citation #		
Citation Description				Citation Description		
PASSENGERS IN VEHICLES (NON-INJURED)						
List all non-injured passengers (excluding driver) in each vehicle. Driver information is captured in the preceding section. Information related to persons injured in the accident (non-Tt employees) is captured in the section below on this form. Injured Tt employee information is captured on FORM IR-A						
Vehicle Number 1 – Tetra Tech Vehicle			Vehicle Number 2 – Other Vehicle			
How many passengers (excluding driver) in the vehicle? ____			How many passengers (excluding driver) in the vehicle? ____			
Non-Injured Passenger Name and Address				Non-Injured Passenger Name and Address		
Non-Injured Passenger Name and Address				Non-Injured Passenger Name and Address		
Non-Injured Passenger Name and Address				Non-Injured Passenger Name and Address		
INJURIES TO NON-TETRATECH EMPLOYEES						
Name of injured person 1			Address of injured person 1			
Age	Gender	Car No.	Location in Car	Seat Belt Used?	Ejected from car?	Injury or Fatality?
	Male <input type="checkbox"/> Female <input type="checkbox"/>			Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	Injured <input type="checkbox"/> Died <input type="checkbox"/>
Name of injured person 2			Address of injured person 2			
Age	Gender	Car No.	Location in Car	Seat Belt Used?	Ejected from car?	Injury or Fatality?
	Male <input type="checkbox"/> Female <input type="checkbox"/>			Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	Injured <input type="checkbox"/> Died <input type="checkbox"/>
OTHER PROPERTY DAMAGE						
Describe damage to property other than motor vehicles						
Property Owner's Name			Property Owner's Address			



TETRA TECH, INC.

Safety Excellence

TETRA TECH, INC.
INCIDENT FORM IR-C

COMPLETE AND SUBMIT DIAGRAM DEPICTING WHAT HAPPENED

A large, empty rectangular area with a thin black border, intended for drawing a diagram depicting what happened during an incident.

ATTACHMENT III
MEDICAL DATA SHEET

MEDICAL DATA SHEET

This Medical Data Sheet must be completed by on-site personnel and kept in a central location accessible to all during the conduct of site operations. Some prefer to keep these documents along with emergency numbers and routes to the hospital in the first aid kit, the first place they would go prior to initiating evacuation. This data sheet will accompany any personnel when medical assistance is needed or if transport to hospital facilities is required.

Project NSB-NLON

Name _____ Cell phone _____

Address _____

Age _____ Height _____ Weight _____

Person to notify in the event of an emergency: Name: _____

Phone: Cell: _____ Home: _____

Drug or other Allergies: _____

Particular Sensitivities/Previous Conditions: _____

Do You Wear Contacts? _____

What medications are you presently using? _____

Name and Phone Number of personal physician: _____

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

HIPAA took effect 1996 and was amended in April 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 Tetra Tech 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 they 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

ATTACHMENT IV
ACTIVITY HAZARD ANALYSIS



ACTIVITY HAZARD ANALYSIS (AHA)

Site Name: NSB-NLON Groton, Connecticut – Zone 4 and Outer Pier 1 Offshore Sediment Sampling

Task: Mobilization/Demobilization

Prepared by	Tom Dickson	Date	7/13/2011	FOL	
Reviewed by	Jim Laffey	Date	7/14/2011	SSO	

JOB STEPS	HAZARDS	CONTROLS
<p>Mobilization / Demobilization</p> <ul style="list-style-type: none"> • Assembling equipment and supplies • Performing initial/exit inspections of the intended work areas • Arranging for utilities, site access, notifying appropriate client contacts • Performing equipment inspections of vehicles and equipment arriving/preparing to depart the site • Collecting and confirming applicable worker training and medical compliance documentation 	<ol style="list-style-type: none"> 1. Water Hazards on boat 2. Minor cuts, abrasions or contusions 3. Heavy lifting (muscle strains and pulls) 4. Vehicular traffic when moving boating equipment to the support or boat ramp area 5. Intermittent high noise levels 	<ol style="list-style-type: none"> 1. Conduct safe boat inspection. This must be completed prior to performing any work at this site. Use the equipment safe boating checklist for watercraft in Attachment I. Once the equipment passes inspection the AHA for the expected task will be followed. VibraCore Sampler. 2. Wear cut-resistant gloves when handling items with sharp or rough edges. 3. Practice safe lifting techniques (use mechanical lifting devices such as a dolly whenever possible, ensure clear path of travel, good grasp on object, perform "test lift" to gauge ability to safely make the lift, lift with legs not back, obtain help when needed to lift large, bulky, or heavy items). 4. Designate/demarcate vehicle and equipment staging areas. Inform site personnel of boating equipment areas and of their responsibility to stay clear of identified security areas surrounding the submarines. In high traffic areas, wear high-visibility vests when deploying or removing boat. 5. Operators/nearby personnel are to wear hearing protection if noise levels are such that they must raise their voice in order to communicate with someone who is within arm's reach (approx. 2') of them. Exposure time is also relevant in this case as the boat will be moved, anchored and then shut down. SSO is responsible for determining and designating when hearing protection is required. Hearing protection is to

ACTIVITY HAZARD ANALYSIS
Mobilization/Demobilization
 Page 2 of 2

JOB STEPS	HAZARDS	CONTROLS
	6. Equipment moving parts	<p>consist of either ear muffs or plugs that have a noise reduction rating (NRR) of at least 25 dB.</p> <p>6. Ensure that workers are thoroughly trained and competent to perform their assigned task with the equipment used in investigation.</p>
EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Hand tools (dollies, hand carts, hand knives, etc.)	Visual inspection prior to use by user.	Review of AHA during pre-task tailgate safety briefing with the intended task participants.
<p>Personal Protective Equipment: Minimum: Safety toe boots, safety glasses. Optional items: Hardhat, hearing protection; standard field attire. Sleeves must be at least 4-inches in length. Sun protection HTRW: None anticipated for this task.</p>	Initial PPE inspection performed by SSO. Ongoing (prior to each use) inspections responsibilities of PPE users.	PPE training in proper use, care, storage, and limitations. It is anticipated that this has been covered in employees' 40 hour HAZWOPER training, which is to be verified by the SSO through initial training documentation and review prior to permitting personnel to participate in any onsite activities, and will be confirmed by visual observations of worker activities.

I have read and understand this AHA:

Name (Printed)	Signature	Occupation	Date of Review or Training



ACTIVITY HAZARD ANALYSIS (AHA)

Site Name: NSB-NLON Groton, Connecticut – Zone 4 and Outer Pier 1 Offshore Sediment Sampling

Task: VibraCore Offshore Sediment Sampling

Prepared by	Tom Dickson	Date	7/13/2011	FOL	
Reviewed by	Jim Laffey	Date	7/14/2011	SSO	

JOB STEPS	HAZARDS	CONTROLS
Working from a boat.	1. Minor cuts, abrasions or contusions handling equipment and tools	1. Wear cut-resistant gloves when handling items with sharp or rough edges.
	2. Weather	1. Obtain the weather forecast and marine conditions prior to departure. If conditions are poor, then the sampling trip should be postponed.
	3. Safety and Boating Hazards	<ol style="list-style-type: none"> 1. A Safe Boating Checklist is included in Attachment I, Marine Safety Plan of this HASP. It must be completed prior to beginning work on the water. The completion of this attachment is not required if the Boat Operator has a Safe Vessel Certification provided by the U.S. Coast Guard (USCG). 2. Approved float plan coordinated with the Harbor Master. 3. Emergency equipment – This includes fire extinguishers, spill pads, first aid kits, audible and visual alerting devices. Knowledge of the use of this equipment. 4. Defined Safety practices while on the water. 5. Wear approved personal floatation devices (PFDs) USCG See Floatation Device Types, Attachment I. 6. Wear slip resistant footwear when sampling on the boat. Deck shoes or similar footwear intended for aquatic purposes. 7. Steel toed work boots are not required or recommended as these may be slippery on the boat deck and weigh you down if you go overboard.
Boat set up and operation	1. Struck By	<ol style="list-style-type: none"> 1. Hard hats and USCG personal floatation devices will be employed by the persons on the boat. 2. Control work area and restrict the non-essential personnel from the area. 3. Inspect VibraCore Sampler frame; hoisting body; connectors of drive rods and core samplers; cable hooks and chains. During transport of the boat and sampling apparatus and ensure that the equipment, augers, rods and tools will be properly secured during transport. 4. Avoid high boat traffic areas until off hours or as directed by the harbor master,
	2. Capsize/Sinking	1. The boat will be anchored in three points to maintain stability over the

ACTIVITY HAZARD ANALYSIS
VibraCore Offshore Sediment Sampling
Page 2 of 6

JOB STEPS	HAZARDS	CONTROLS
		<p>selected sampling point. When lifting the frame and sampler, exercise caution concerning the angle of pull and load applied. The load stability will be controlled using taglines where necessary.</p> <ol style="list-style-type: none"> 2. During high boat traffic orient the sampling boat head on into oncoming wakes. 3. When moving towards shore, the operators helper will monitor bottom depth during approaching sample locations. During this activity, bottom obstructions will also be monitored to avoid possible damage to the boat. Nautical maps will provide water depths and where known subsurface obstructions.
	3. Slips, Trips, Falls	<ol style="list-style-type: none"> 1. Practice good housekeeping - Clear tools, sampling equipment from the deck to allow free movement. 2. Wear appropriate foot protection to prevent slips and trips. Sample processing station - Use caution when working on uneven and wet ground surfaces.
	4. Minor cuts, or abrasions	<ol style="list-style-type: none"> 1. When handling equipment and tools wear cut-resistant gloves when handling items with sharp or rough edges.
	5. Heavy lifting (muscle strains and pulls)	<ol style="list-style-type: none"> 1. Practice safe lifting techniques (use mechanical lifting devices whenever possible. 2. Ensure clear path of travel, good grasp on object, perform "test lift" to gauge ability to safely make the lift 3. Lift with legs, obtain help to lift large, bulky, or heavy items.
	6. Insect bites	<ol style="list-style-type: none"> 1. Shake out boots before donning. 2. Use insect repellants (products containing DEET should be applied to exposed skin, products containing Permethrin should be applied to clothing only. Follow manufacturer's recommendations for application). 3. For field crews at the sampling processing station - Tape up pants leg to work boot joints with duct tape. Wear light-colored clothing to better see and remove any insects. Perform close body inspections at least daily upon leaving the site.
	7. Inclement weather	<ol style="list-style-type: none"> 1. The FOL and/or the SSO will temporarily suspend outside activities in the event of electrical storms or high winds. 2. It is preferred that supported systems such as lightning detection devices or emergency weather broadcasts are employed. 3. However, when this is not possible field personnel should use the 30/30 Rule: <i>"If there is less than 30 seconds between thunder and lightning go inside</i>

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VibraCore Offshore Sediment Sampling
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JOB STEPS	HAZARDS	CONTROLS
		<i>and stay inside for at least 30 minutes after the last thunder.”</i>
Boat Operations	1. Intermittent high noise levels	<ol style="list-style-type: none"> 1. Operators/nearby personnel are to wear hearing protection if noise levels are such that they must raise their voice in order to communicate with someone who is within arm’s reach (approx. 2’) of them. 2. SSO responsible for determining and designating when hearing protection is required. 3. Hearing protection is to consist of either ear muffs or ear plugs that have an NRR of at least 25 dB,
	2. Contact with equipment moving parts.	<ol style="list-style-type: none"> 1. Ensure that workers are thoroughly trained and competent to perform their assigned task with the equipment used in investigation. 2. The equipment operators and Site Supervisors are responsible to ensure that the equipment is properly inspection prior to being permitted onsite. (see Boat Inspection Checklist, Attachment I) 3. Hoisting mechanism - Ensure that the moving parts are guarded if such parts are exposed. Check/test the emergency stop controls.
	3. Contact/striking underground or overhead utilities	<ol style="list-style-type: none"> 1. Inspect for buried and overhead utilities in the vicinity of the VibraCore sampling location. Verify the location of utility lines in accordance with the Tetra Tech SOP Utility Location and Excavation Clearance located in Section 4.0 of the HSGM. Plan the move with the local utility companies if utility lines must be moved. 2. Pre-survey the height of equipment and height of utility lines to determine which lines must be removed or raised. Equipment should not come within 20 feet of existing overhead utility lines.
	4. Pressurized hydraulic lines could rupture, causing release of hot hydraulic fluid.	<ol style="list-style-type: none"> 1. Inspect the hydraulic lines before placing rig in service. Any damaged hoses or connections must be replaced before unit is used. 2. Immediately shut down equipment if lines rupture. If rupture occurs, as quickly as possible, berm the liquid to minimize the area over which the liquid spreads. 3. Ensure that the pressurized lines not mechanically attached have whip checks or similar anti-flail control.
	5. Floor or siderail opening.	<ol style="list-style-type: none"> 1. Guard floor openings. Place temporary handrails or warning indicators during the sampler deployment if in doing so this leaves floor openings exposed or opened. 2. Personal fall protection may also be employed in this case.

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VibraCore Offshore Sediment Sampling
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JOB STEPS	HAZARDS	CONTROLS
Handling drive rods and samplers	1. Struck by/entanglement	<ol style="list-style-type: none"> 1. Be prepared for sudden shifting when removing rod sections or due to boating traffic generated wakes. 2. Restrict non-essential personnel from approaching working area, especially during hoisting operations. If
	2. Overhead hazards	<ol style="list-style-type: none"> 1. Site personnel within the radius of the hoisting and frame must wear ANSI approved hard hats.
	3. Slips, Trips, Falls	<ol style="list-style-type: none"> 1. Clear trees, roots, weeds, limbs and other ground hazards from the location. 2. Practice good housekeeping to keep the ground around the site clear of obstructions, equipment and other tripping hazards. 3. Wear appropriate foot protection to prevent slips and trips. Use caution when working on uneven and wet ground surfaces. Keep a wide base and assure secure footing while attempting to handler auger flights and tooling.
	4. Contusions, cuts, or abrasions	<ol style="list-style-type: none"> 1. When handling auger flights and tools, wear cut-resistant heavy cotton or leather work gloves when handling items with sharp or rough edges.
	5. Heavy lifting (muscle strains and pulls).	<ol style="list-style-type: none"> 1. Practice safe lifting techniques by using mechanical lifting devices such as a dolly whenever possible. 2. Ensure clear path of travel 3. Have a good grasp on object. Perform "test lift" to gauge ability to safely make the lift. 4. Lift with legs not back. Obtain help when needed to lift large, bulky, or heavy items
Mechanical extraction using a winch.	1. Entanglement Hazard	<ol style="list-style-type: none"> 1. Ensure the operators adequately comprehend the operation of the winch before using it. 2. Never leave wired remote control plugged into winch when free spooling, rigging, or when the winch is not being used. 3. Alert the bystanders when engaging the winch. 4. Always keep wired remote control lead clear of the drum, rope, and rigging. Inspect for cracks, pinches, frayed wires or loose connections. Replace remote control if damaged. 5. Exercise care when working near the drum with gloves on that could become entangled. 6. Never leave remote control where it can be activated during free spooling, rigging, or when the winch is not being used.
Subsurface sediment coring	1. Chemical exposure to concentrations of PCBs, PAHs, and metals	<ol style="list-style-type: none"> 1. Wear surgeon's gloves when handling potentially-contaminated media and samples. Avoid contact with potentially-contaminated media to the extent possible. 2. Practice good personal hygiene (hands and face washing). No Hand-to-

ACTIVITY HAZARD ANALYSIS
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JOB STEPS	HAZARDS	CONTROLS
	<p>2. Cuts and lacerations – when cutting acetate liners without the proper material handling devices.</p>	<p>mouth activities in the work area (eating, drinking, smoking, etc.).</p> <p>3. Exposure via dermal contact and ingestion represent some limited concern during this task.</p> <p>1. Always cut away from yourself and others. Do not place items to be cut in your hand or on your knee.</p> <p>2. Change blades as necessary to maintain a sharp cutting edge as many accidents result dull cutting attachments.</p> <p>3. Wear cut-resistant gloves (leather or heavy cotton) at least on the non-knife/saw hand, where possible. When cutting acetate liners use the tubing retention tub to secure the tube.</p> <p>4. Use the knife intended for that purpose. Geoprobe® makes a kit for this purpose.</p>
EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
<p>Boat; VibraCore Sampler; drive rods, acetate cutting device and sharp knives, hand tools (dollies, hand carts, etc.)</p> <p>Safety Equipment:</p> <ol style="list-style-type: none"> 1. A 20-pound dry chemical ABC fire extinguisher readily available. 2. Spill-control kit available on the boat. 3. First-aid kit, eyewash, and an emergency air horn nearby. 4. Portable eye wash bottle <p>Monitoring Instruments: None</p>	<p>Visual inspection prior to use by user.</p>	<ol style="list-style-type: none"> 1. Review of AHA during pre-task tailgate safety briefing with the intended task participants. 2. Personnel must be trained in use of drilling equipment. 3. The boat and sediment sampler operator must have current certifications to operate the boat.

ACTIVITY HAZARD ANALYSIS
VibraCore Offshore Sediment Sampling
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EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
<p>Personal Protective Equipment: <u>Minimum</u>: Safety toe boots, safety glasses, hardhat; USCG floatation device properly sized. <u>Optional items</u>: Hardhat, hearing protection. <u>HTRW</u>: nitrile surgeon's style gloves and Tyvek if there is a change to soil clothing. Aprons may be employed when and if heat stress is an issue.</p>	<p>Initial PPE inspection performed by SSO. Ongoing (prior to each use) inspections responsibilities of PPE users.</p>	<p>PPE training in proper use, care, storage, and limitations. It is anticipated that this has been covered in employees' 40 hour HAZWOPER training, which is to be verified by the SSO through initial training documentation and review prior to permitting personnel to participate in any onsite activities, and will be confirmed by visual observations of worker activities.</p>

I have read and understand this AHA:

Name (Printed)	Signature	Date



ACTIVITY HAZARD ANALYSIS (AHA)

Site Name: NSB-NLON Groton, Connecticut – Zone 4 and Outer Pier 1 Offshore Sediment Sampling

Task: Decontamination

Prepared by	Tom Dickson	Date	7/13/2011	FOL	
Reviewed by	Jim Laffey	Date	7/14/2011	SSO	

JOB STEPS	HAZARDS	CONTROLS
Personal Decontamination <ul style="list-style-type: none"> • Equipment drop • Segregated removal of PPE (wash and rinse reusable items, dispose of non-reusable items) 	1. Slips, Trips, Falls 2. Exposure to contaminated media	1. Clear intended decon area location of ground or deck hazards. Practice good housekeeping to keep the site clear of obstructions, materials, equipment and other tripping hazards. Wear appropriate foot protection to prevent slips and trips. Use caution when working on uneven and wet surfaces. 2. Follow good decontamination practices (work from top down and outside in). Nitrile gloves are to be the last item of PPE removed. Wash hands and face following personal decontamination and prior to performing any hand-to-mouth activity.
Decontamination of boating equipment and large tooling (e.g., vehicles, etc.) using pressure washer	1. Noise 2. Flying projectiles	1. Pressure washer operator must wear hearing protection (muffs or plugs with NRR of at least 25 dB) 2. Restrict other personnel from decon pad during pressure washing operations. Pressure washer operator must exercise care when directing the wand so that it is not pointing at himself/herself or at any other worker. Pressure washer operator must wear full face shield over safety glasses with side shields and brow protection. At SSO discretion, additional PPE consisting of hardhat, rainsuit, apron, and or boot covers may be required during decon operations - depending on observations indicating that significant contact with decon overspray and/or windy conditions during washing activities.

ACTIVITY HAZARD ANALYSIS**Decontamination**

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JOB STEPS	HAZARDS	CONTROLS
	<ul style="list-style-type: none">3. Falling objects4. Strains/sprains from heavy lifting5. Slips/trips/falls6. Exposure to contaminated media	<ul style="list-style-type: none">3. Place items to be decontaminated on ground or deck or in washing/drying racks in a manner that they are secure and will not fall. Wear safety toe safety footwear.4. Practice safe lifting techniques (use mechanical lifting devices such as a dolly whenever possible, ensure clear path of travel, good grasp on object, perform "test lift" to gauge ability to safely make the lift, lift with legs not back, obtain help when needed to lift large, bulky, or heavy items).5. Keep decon areas orderly, maintain good housekeeping, spread light coating of sand on decon pad liner to increase traction.6. Follow good decontamination practices (work from top down and outside in). Surgeon's gloves are to be the last item of PPE removed. Wash hands and face following personal decontamination and prior to performing any hand-to-mouth activity.
EQUIPMENT	INSPECTION	TRAINING
<p>Hand tools (hand brushes, garden sprayers, etc.)</p> <p>Pressure washer</p>	<p>Visual inspection prior to use by user. Check wooden handles for cracks or splinters.</p> <p>Inspect pressure washer prior to putting into service to ensure that it is in good working order, and ensure that fittings are secure.</p>	<p>None required.</p> <p>Review manufacturer's instructions and safety guidelines prior to use.</p>

ACTIVITY HAZARD ANALYSIS

Decontamination

EQUIPMENT	INSPECTION	TRAINING
<p>Personal Protective Equipment: Minimum: Safety toe boots, safety glasses Optional items: Hardhat, hearing protection. HTRW: Sediment core tooling will be flushed using river water. An onboard power pressure washer maybe used to flush and remove contaminants. Decontamination pad pressure washer operators are to wear full face shield over safety glasses with side shields and brow protection, hearing protection, and nitrile gloves. If contact with overspray cannot be avoided, rain suit or moisture-repellant disposable coveralls may be specified by the SSO.</p>	<p>Initial PPE inspection performed by SSO. Ongoing (prior to each use) inspections responsibilities of PPE users.</p>	<p>OSHA 40 Hazardous Waste Operations and Emergency Response (HAZWOPER) training, plus appropriate 8-hour annual refresher training for the task participants. Supervisors must have completed additional 8 hours of HAZWOPER training. Also Review of AHA during tailgate safety briefing with the intended task participants.</p> <p>PPE training in proper use, care, storage, and limitations. It is anticipated that this has been covered in employees' 40 hour HAZWOPER training, which is to be verified by the SSO through initial training documentation and review prior to permitting personnel to participate in site activities, and will be confirmed by visual observations of worker activities.</p>

I have read and understand this AHA:

Name (Printed)	Signature	Occupation	Date of Review or Training



ACTIVITY HAZARD ANALYSIS (AHA)

Site Name: NSB-NLON Groton, Connecticut – Zone 4 and Outer Pier 1 Offshore Sediment Sampling

Task: IDW Management

Prepared by	Tom Dickson	Date	7/13/2011	FOL	
Reviewed by	Jim Laffey	Date	7/14/2011	SSO	

JOB STEPS	HAZARDS	CONTROLS
Filling, moving 55-gallon drums of IDW	1. Heavy lifting	1. Practice safe lifting techniques (use mechanical lifting devices such as a dolly whenever possible). 2. Ensure clear path of travel, 3. Have a good grasp on object and perform "test lift" to gauge ability to safely make the lift. 4. Lift with legs not back 5. Obtain help when needed to lift large, bulky, or heavy items.
	2. Struck by/pinches compressions	1. Exercise caution when handling drums. 2. Position drums so that there is adequate room between them for placement and repositioning.
	3. Falling objects (drums)	1. Do not stack drums on top of each other. 2. Do not place more than 4 drums to a pallet. 3. Leave at least 4 ft. of clearance between pallets for clear access.
	4. Slips, Trips, Falls	1. Maintain good housekeeping in IDW storage areas, keeping it clear of loose debris and other potential tripping hazards. 2. Wear appropriate foot protection to prevent slips and trips. 3. Use caution when working on uneven and wet ground surfaces.
	5. Foot hazards	1. Safety toe foot protection will be required for IDW container handling activities.
	6. Strains/sprains due to heavy lifting	1. Practice safe lifting techniques (use mechanical lifting devices such as a dolly whenever possible, ensure clear path of travel, good grasp on object, lift with legs not back, and obtain help when needed to lift large, bulky, or heavy items).
	7. Minor contusions, abrasions, cuts	1. Wear cut-resistant gloves when handling items with sharp or rough edges.

ACTIVITY HAZARD ANALYSIS
IDW Management
 Page 2 of 2

EQUIPMENT	INSPECTION	TRAINING
Hand tools (drum dollies, wrenches, etc.)	Visual inspection prior to use by user. Check wooden handles for cracks or splinters.	Site personnel participating in this activity must be current with HAZWOPER training requirements.
<p>Personal Protective Equipment: <u>Minimum:</u> Safety toe boots, safety glasses <u>Optional items:</u> Hardhat, cotton or leather work gloves.</p> <p><u>HTRW:</u> If contact with IDW is likely, wear chemical-resistant coveralls (e.g., Tyvek) or aprons and surgeon's nitrile gloves under leather/cotton work gloves.</p>	Initial PPE inspection performed by SSO. Ongoing (prior to each use) inspections responsibilities of PPE users.	PPE training in proper use, care, storage, and limitations. It is anticipated that this has been covered in employees 40 hour HAZWOPER training, which is to be verified by the SSO through initial training documentation and review prior to permitting personnel to participate in site activities, and will be confirmed by visual observations of worker activities.

I have read and understand this AHA:

Name (Printed)	Signature	Date

ATTACHMENT V
OSHA POSTER

Job Safety and Health

It's the law!

OSHA

Occupational Safety and Health Administration
U.S. Department of Labor

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**



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.

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