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HEALTH AND SAFETY PLAN FOR SITE 34 FIELD INVESTIGATION AND ASSOCIATED
ACTIVITIES NSY PORTSMOUTH ME
9/1/2010
TETRA TECH NUS

Health and Safety Plan
For
Site 34
Field Investigation and
Associated Activities
at
Portsmouth Naval Shipyard
Kittery, Maine



Naval Facilities Engineering Command
Mid-Atlantic

Contract Number N62467-04-D-0055
Contract Task Order 533

September 2010
Revision 2

HEALTH AND SAFETY PLAN
FOR
SITE 34
FIELD INVESTIGATIONS AND
ASSOCIATED ACTIVITIES
AT
PORTSMOUTH NAVAL SHIPYARD
KITTERY, MAINE

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

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CONTRACT NUMBER N62467-04-D-0055
CONTRACT TASK ORDER 533

SEPTEMBER 2010
Revision 2

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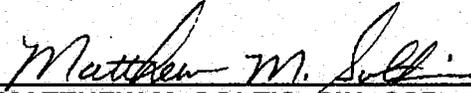

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1.0 INTRODUCTION

This Health and Safety Plan (HASP) is specifically written for the field investigation at Operable Unit (OU9) (Site 34), to be conducted at the Portsmouth Naval Shipyard (PNS), located in the Town of Kittery, Maine.

This HASP is to be used in conjunction with the Tetra Tech, Inc. (Tetra Tech) Health and Safety Guidance Manual. The Guidance Manual provides detailed information pertaining to hazard recognition and control, and Tetra Tech standard operating procedures. This HASP and the contents of the Guidance Manual were developed to comply with the requirements stipulated in 29 CFR 1910.120 (OSHA's Hazardous Waste Operations and Emergency Response Standard). Both documents must be present at the site to satisfy these requirements.

This HASP has been written to support 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 with the approval of the Tetra Tech Site Safety Officer (SSO) and the Tetra Tech Health and Safety Manager (HSM). Requests for modifications to the HASP will be directed to the SSO who will determine whether to make the changes. The SSO will notify the Project Manager (PM), who will notify the affected personnel of changes.

1.1 AUTHORITY

This work is authorized under the Comprehensive Long - Term Environmental Action Navy (CLEAN) contract, administered through the U.S. Navy Northwest, Naval Facilities Engineering Command, as defined under Contract No. N6267-04-D-0055 Contract Task Order: (CTO) 533.

1.2 KEY PROJECT PERSONNEL AND ORGANIZATION

This section defines responsibilities for site safety and health for Tetra Tech and subcontractor employees engaged in on-site activities. Personnel assigned to these positions will exercise primary responsibility for the on-site health and safety. These people will be the primary points of contact for any questions regarding the safety and health procedures and the selected control measures to be implemented for on-site activities.

- The Tetra Tech Project Manager (PM) is responsible for the overall direction of health and safety for this project.
- The Project Health and Safety Officer (PHSO) is responsible for developing this HASP in accordance with applicable OSHA regulations. Specific responsibilities include the following:
 - i. Providing information regarding site contaminants and physical hazards associated with the site and tasks to be conducted.
 - ii. Establishing air monitoring and decontamination procedures.
 - iii. Assigning personal protective equipment (PPE) based on task and potential hazards.
 - iv. Determining emergency response procedures and emergency contacts.
 - v. Stipulating training requirements and reviewing appropriate training and medical surveillance certificates.
 - vi. Providing standard work practices to minimize potential injuries and exposures associated with hazardous waste work.
 - vii. Modifying this HASP, as it becomes necessary.
- The Tetra Tech Field Operations Leader (FOL) is responsible for implementation of the HASP with the assistance of an appointed Site Safety Officer (SSO). The FOL:
 - Manages field activities
 - Executes the work plan
 - Enforces safety procedures as applicable to the work plan.
- The SSO supports site activities by advising the FOL on the aspects of health and safety on site. These duties may include:
 - Coordinating all health and safety activities with the FOL.
 - Selecting, applying, inspecting, and maintaining personal protective equipment.
 - Establishing work zones and control points.
 - Implementation of the air monitoring program for on-site activities.
 - Verifying training and medical clearances of on-site personnel status in relation to site activities.
 - Implementing hazard communication, respiratory protection, and associated health and safety programs as they pertain to site activities.
 - Coordination with identified emergency services.
 - Providing site specific training for all on-site personnel.

- Compliance with the requirements stipulated in this HASP is monitored by the SSO and coordinated through the Tetra Tech CLEAN HSM.

1.3 STOP WORK AUTHORIZATION

All employees 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 Corporate Health and Safety Manager. Through observations and communication, all parties involved shall then develop, communicate, and implement corrective actions necessary and appropriate to modify the task and to resume work.

2.0 EMERGENCY ACTION PLAN

2.1 INTRODUCTION

This section is to direct and guide field personnel in the event of an emergency. Site activities will be coordinated through the client contact Matt Thyng. In the event of an emergency that cannot be mitigated using onsite resources, personnel will evacuate to a safe place of refuge and the appropriate emergency response agencies will be notified. It has been determined that the majority of potential emergency situations would be better supported by outside emergency responders. Based on this determination, Tetra Tech and subcontractor personnel will not provide emergency response support beyond the capabilities of onsite response. Workers who are ill or who have suffered a non-serious injury may be transported by site personnel to nearby medical facilities, provided that such transport does not aggravate or further endanger the welfare of the injured/ill person.

The emergency response agencies listed in this plan are capable of providing the most effective response, and as such, will be designated as the primary responders. These agencies are located within a reasonable distance from the area of site operations, which ensures adequate emergency response time. The PNS contact Matt Thyng will be notified when emergency response agencies are contacted. This Emergency Action Plan conforms to the requirements of 29 Code of Federal Regulations (CFR) 1910.38(a), as allowed in 29 CFR 1910.120(l)(1)(ii).

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

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

2.2 EMERGENCY PLANNING

Through the initial hazard/risk assessment effort, emergencies resulting from chemical, physical, or fire hazards are the types of emergencies that could be encountered during site activities.

To mitigate the potential for these emergency situations, emergency planning activities under the direction of the SSO and/or the FOL will include the following:

- Coordinating with local Emergency Response personnel to ensure that Tetra Tech emergency action activities are compatible with existing emergency response procedures. The PNS Fire Department and Emergency Services will be notified of scheduled events and activities. This is most imperative in situations where their services may be required.
- Establishing and maintaining information at the project staging area (Support Zone) for easy access in the event of an emergency. This information will include the following:
 - Chemical Inventory of chemicals used onsite, with Material Safety Data Sheets.
 - Onsite personnel medical records (Medical Data Sheets).
 - A log book identifying personnel onsite each day.
 - Hospital route maps with directions (these should also be placed in each site vehicle).
 - Emergency Notification - phone numbers.

The Tetra Tech FOL will be responsible for the following tasks:

- Identifying a chain of command for emergency action. The FOL and/or the SSO will exercise primary responsibility for directing the actions of Tetra Tech and subcontractor personnel during emergency actions.
- Educating site workers to the hazards and control measures associated with site activities, and providing early recognition and prevention, through site specific training and periodic safety briefings.
- Providing the necessary equipment to safely accomplish identified tasks.
- In coordination with the PNS Emergency Services this plan will be presented and exercised as deemed necessary by the Chief of the PNS Emergency Services.

2.3 EMERGENCY RECOGNITION AND PREVENTION

Site personnel should be constantly alert for indicators of potentially hazardous situations and for signs and symptoms of over exposure in themselves and others that warn of hazardous conditions. Early recognition of dangerous situations can prevent them from becoming emergency situations.

2.3.1 **Recognition**

Emergency situations that may be encountered during site activities will generally be recognized by visual observation. To adequately recognize chemical exposures, site personnel must have a clear knowledge of signs and symptoms of exposure associated with site contaminants. Tasks to be performed at the site, potential hazards associated with those tasks and the recommended control methods are discussed in this HASP.

Additionally, early recognition of hazards will be supported by daily site surveys to eliminate any situation predisposed to an emergency. The FOL and/or the SSO will be responsible for performing surveys of work areas prior to initiating site operations and periodically while operations are being conducted. Survey findings will be documented by the FOL and/or the SSO in the Site Health and Safety logbook; however, site personnel will be responsible for reporting hazardous situations. Where potential hazards exist, 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 instigate necessary 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.

2.4 **EVACUATION ROUTES, PROCEDURES, AND PLACES OF REFUGE**

An evacuation will be initiated whenever recommended hazard controls are insufficient to protect the health, safety or welfare of site workers. Specific examples of conditions that may initiate an evacuation include, but are not limited to the following:

- Severe weather conditions
- Fire or explosion
- Monitoring instrumentation readings indicating contamination level of greater than action level
- Evidence of personnel overexposure to potential site contaminants.

In the event of an emergency requiring evacuation, personnel will immediately stop activities and report to the designated safe place of refuge unless doing so would pose additional risks. When evacuation to the primary place of refuge is not possible, personnel will proceed to a designated alternate location and remain until further notification from the Tetra Tech FOL. Safe places of refuge will be identified prior to the commencement of site activities by the SSO and will be conveyed to personnel as part of the pre-activities training session. This information will be reiterated during daily safety meetings. Whenever possible, the safe place of refuge will also serve as the telephone communications point for that area.

During an evacuation, personnel will remain at the refuge location until directed otherwise by the Tetra Tech FOL or the on-site Incident Commander of the Emergency Response Team. The FOL or the SSO will perform a head count at this location to account for and to confirm the location of 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 contact 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 (Attachment I).

TABLE 2-1
EMERGENCY REFERENCES
NAVAL SHIPYARD

AGENCY	TELEPHONE NUMBER
Police (Shipyards)	(207) 438-2444*
Fire Department (Shipyards) Ambulance (Shipyards)	(207) 438-2333*
Regional Hospital: Hospital Emergency Department Main Switchboard	(603) 433-4042 (603) 436-5110
Poison Control Center	800-222-1222
Chemtrec	800-424-9300
National Response Center	800-424-8202
Dig Safe (Maine)	811
PNS Site Contact Frederick Matthew "Matt" Thyng	(207) 438-6618-office
Navy RPM Linda Cole	(757) 341-2011
Tetra Tech Project Manager Deborah Cohen, PE	(412) 921-7118
Tetra Tech Project Health and Safety Officer Clyde Snyder	(412) 921-8904
CLEAN Health and Safety Manager Matthew M. Soltis, CIH, CSP	(412) 921-8912

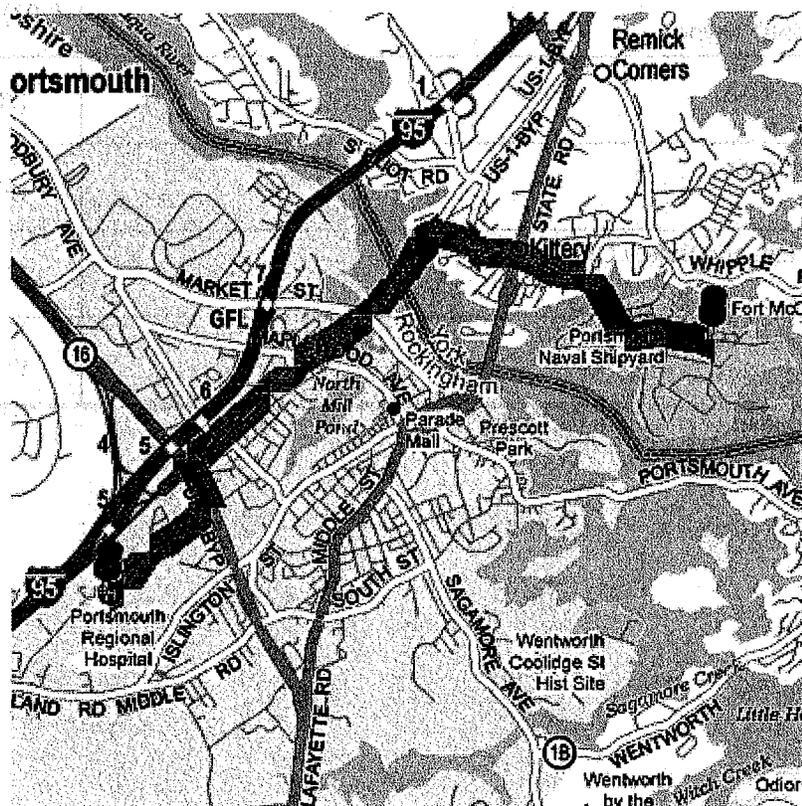
*Phone calls from Base phones use last 4 digits.

2.6 EMERGENCY ROUTE TO HOSPITAL

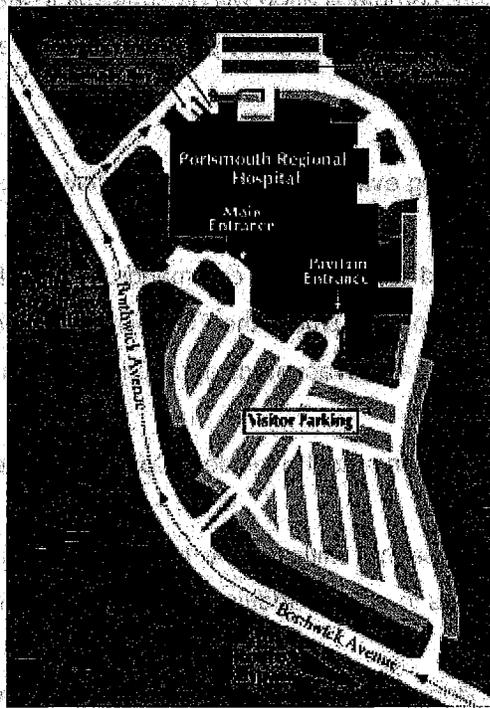
Regional Hospital
333 Borthwick Avenue
Portsmouth, NH 03801

**FIGURE 2-1
ROUTE TO HOSPITAL**

- 1) From Site 34 turn right on Wyman Street
- 2) Turn right on Walker Street
- 3) Exit the Shipyard through Gate No. 1; continue straight until road ends at Route 1 Bypass.
- 4) Enter underpass rotary on left side. Go under Route 1 Bypass and loop onto Route 1 Bypass South.
- 5) Cross bridge and continue straight to traffic circle. At traffic circle, go around to the right 270 degrees, 3/4 circle from entrance to traffic circle. Exit right.
- 6) At second set of traffic lights, turn right onto Borthwick Ave. Ext.; precede 1/2 to 1 mile.
- 7) Regional Hospital will be on the right side.



Hospital Campus Map



2.7 EMERGENCY ALERTING AND ACTION/RESPONSE PROCEDURES

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

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

- Initiate the evacuation via hand signals, voice commands, or line of site communication
- Report to the designated refuge point where the FOL will account for all personnel
- Once non-essential personnel are evacuated, appropriate response procedures will be enacted to control the situation.
- Describe to the FOL (FOL will serve as the Incident Coordinator) pertinent incident details.

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

- Call the appropriate emergency contacts (Table 2-1) and report the emergency.
- Give the emergency operator the location of the emergency, the type of emergency, the number of injured, and a brief description of what occurred.
- 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 performed only if doing so does not further jeopardize the welfare of site workers. Decontamination will be postponed if the incident warrants immediate evacuation. However, it is unlikely that an evacuation would occur which would require workers to evacuate the site without first performing the necessary decontamination procedures.

Tetra Tech personnel will perform rescue operations from emergency situations and may provide initial medical support for injury/illnesses requiring only "Basic First-Aid" level support, and only within the limits of training obtained by site personnel. Basic First-Aid is considered treatment that can be rendered by a trained first aid provider at the injury location and not requiring follow-up treatment or examination by a physician (for example; minor cuts, bruises, stings, scrapes, and burns). Not included as Basic First-Aid are second or third degree burns, cuts, lacerations requiring stitches or butterfly bandaging, heat exhaustion, severe poisonous plant or insect bite reactions. Personnel providing medical assistance are required to be trained in First-Aid. Medical attention above First-Aid level support will require assistance from the designated emergency response agencies. Attachment II provides the procedure to follow when reporting an injury/illness, and the form to be used for this purpose. **If the emergency involves personnel exposures to chemicals, follow the steps provided in Figure 2-2.**

2.10 INJURY/ILLNESS REPORTING

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

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.

2.10.1 TOTAL Incident Reporting System

TOTAL is Tetra Tech's new online incident reporting system. Use TOTAL to directly report health and safety incidents, notify key personnel, and initiate the process for properly investigating and addressing the causes of incidents, including near-miss events. An incident is considered any unplanned event. It may include several types of near misses, events where no loss was incurred, or incidents that resulted in injuries or illness, property or equipment damage, chemical spills, fires, or damage to motor vehicles.

TOTAL looks like the incident reporting form in Attachment II. TOTAL is an intuitive system that will guide you through the necessary steps to report an incident within 24 hours of its occurrence. Behind the scenes, TOTAL is a powerful tool for H&S professionals, and will help Tetra Tech to better track incidents, analyze root causes, implement corrective action plans, and share lessons learned. The ultimate result is a more safe and healthy working environment for us all.

Based on these historical site uses and the environmental investigations at Site 34, coal combustion was the major source of Site 34 contamination. Tar generation during the oil gasification process and pesticide operations in Building 62 were also identified as potential sources of Site 34 contamination. These sources are further described below.

- Coal (fuel) combustion during the oil gasification process and during blacksmithing activities led to the generation of ash. Ash mixed with clinkers (metallic impurities from burnt coal), assumed to be from the combustion of coal (and potentially including ash from the building fire), was piled primarily north of Building 62. During initial environmental investigations, the ash pile was found to cover an area approximately 100 feet long (along the length of Building 62 and Building 62 annex) and 30 feet wide that extended northward to the edge of the previous road (removed in 2007) that ran east-west and parallel to the northern edges of the buildings. The ash pile was covered with a layer of soil and vegetation. During subsequent investigations, ash was also found under asphalted areas around Buildings 62, 62 annex, and 63. The majority of ash was removed in 2007. Ash remains in unexcavated areas of Site 34 and possibly under Building 62.
- Tar generated as a by-product of the oil gasification process was reportedly disposed of in a pit inside Building 62 when the plant was in operation. The specific process used at this plant was reportedly very efficient and produced very small volumes of tar residue; however, records of actual volumes of tar residue are not available. The tar pit had an opening approximately 5-feet by 5-feet in size. Tar may have been removed from the pit when the oil gasification process was terminated and all of the equipment from the building was removed, after which the concrete floor was installed. Currently, a restroom is located above the former tar pit location. General information on tar from oil gas manufacturing plants shows that elementally, the tar is primarily carbon (89 to 94 percent) and hydrogen (4 to 7 percent). Polynuclear aromatic hydrocarbons (PAHs) are the major United States Environmental Protection Agency (USEPA) priority pollutant associated with the tar. Phenanthrene, fluoranthene, and pyrene are the dominant PAHs found in oil tar.
- Environmental investigations were conducted to determine whether pesticide storage activities at Building 62 were potential sources of Site 34 contamination. Pesticides were not found to be contaminants of concern for Site 34.

4.0 SCOPE OF WORK

This section describes the project tasks that will be performed at PNS as part of this scope.

The following is a list of activities that are covered in this HASP for the Field Investigation at OU9 (Site 34):

- Mobilization/demobilization
- Subsurface soil investigation via direct push technology (DPT)
- Investigation derived waste (IDW) management
- Surveying
- Decontamination

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 the requested modifications to this document to the Tetra Tech HSM.

- Establish appropriate decontamination procedures for leaving the site.
- Immediately report injuries, illnesses, and unsafe conditions, practices, and equipment to the SSO.
- Observe posted traffic signs and any site/base-specific rules and regulations.
- When working near roadways or areas of heavy traffic, use high-visibility reflective vests. If traffic must be diverted or otherwise controlled, contact the PHSO for additional guidance.
- Keep work areas and storage facilities clear and free of ground clutter.

5.2 DPT SAFE WORK PRACTICES

The following safe work practices are to be followed when working in or around drill rig/DPT operations:

- Identify underground utilities and buried structures before drilling. Use the Utility Locating and Excavation Clearance SOP provided in Section 4.0 of the HSGM.
- DPT rigs will be inspected by the SSO or designee prior to acceptance of the equipment at the site and prior to the use of the equipment. Any repairs or deficiencies identified during the inspection will be corrected prior to use.
- Equipment inspections will be documented using the Equipment Inspection Checklist provided in Attachment IV.
- Equipment inspections will be conducted once each shift (either 5- or 10-day) or following repairs.
- Equipment and staging lay down areas will be established to keep the work area clear of clutter and slip, trip, and fall hazards.
- The drill operator will verbally alert employees and visually ensure that employees are clear from dangerous parts of equipment before starting or engaging equipment.
- Secure frayed or loose clothing, hair, and jewelry when working with operating equipment.
- Minimize contact to the extent possible with contaminated tooling and environmental media.

- Support functions (sampling and screening stations) will be maintained a minimum distance from the DPT rig of the height of the mast plus 5 feet to remove these activities from within physical hazard boundaries.
- Only qualified operators and knowledgeable ground crew personnel will participate in operation of the DPT rig.
- Only personnel absolutely essential to the work activity will be allowed in the exclusion zone. Site visitors will be escorted.
- Equipment that comes into direct contact with potentially contaminated media will undergo a complete decontamination prior to moving to the next location, exiting the site, or prior to down time for maintenance.
- Whenever possible, motorized equipment will be fueled prior to commencement of the day's activities.
- During fueling operations on site, equipment will be shut down and bonded to the fuel provider to prevent the potential accumulation of static charges.
- When not in use, DPT rigs will be shut down, emergency brakes set, and wheels chocked (where hilly terrain is present)

Areas subjected to subsurface investigative methods will be restored to equal or better condition than original to the extent practical to remove contamination brought to the surface and to remove physical hazards. In situations where these hazards cannot be removed, these areas will be barricaded to minimize the impact on field crews working in the area.

6.0 HAZARD ASSESSMENT

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

6.1 CHEMICAL HAZARDS

Historical information and an evaluation of previous data collected from the site showed that volatile organic compounds (VOCs), specifically benzene, and metals specifically aluminum, zinc, lead, chromium, and arsenic are the contaminants of concern at this site.

Although it is a possibility, it is unlikely that any COCs will approach airborne concentrations reaching current occupational exposure limits (OEL). Table 6-1 provides a comparison of the potential worst-case scenario air concentrations to the current OELs for benzene, and the amount of dust in air that would have to be generated to reach current OELs for the primary metal COCs.

At Site 34, the quantity of dust that would be disturbed before an OEL concentration would be approached is greater than the range of what is visible to the unaided human eye (> 2.5 ppm). Soil boring activities involving a DPT unit will not produce dust in quantities that would be detrimental to site workers. Therefore, it will not be necessary to use a dust monitor due to the limited nature of intrusive activities being performed.

If there is a change in the scope of work (e.g. soil boring activities other than DPT occur) then this HASP will be revised to meet new procedures.

At Site 34, benzene could pose a potential health hazard. Therefore, a PID will be required for work at Site 34, to monitor for VOCs (see Section 7).

**TABLE 6-1
COMPARISON OF BENZENE CONCENTRATIONS
AND AMOUNT OF DUST IN AIR METAL CONCENTRATIONS
TO CURRENT OCCUPATIONAL EXPOSURE LIMITS**

Volatile Organics			
Contaminant of Concern	Highest Concentration Previously Detected in Soil	Worst-Case Air Concentration	Current OSHA PEL and ACGIH TLV
Benzene	0.008 mg/kg (Site 34)	0.5 ppm	OSHA: 1 ppm TWA ₈ ACGIH TLV: 0.5 ppm TWA ₈
Particulates			
Contaminant of Concern	Highest Concentration Previously Detected in Soil	Amount of Dust in Air Generated Before PEL/TLV Would be Reached	Current OSHA PEL and ACGIH TLV
Aluminum	35,000 mg/kg	35.71 mg/m ³	ACGIH: 1R TWA ₈ OSHA: 15 ppm TWA ₈
Arsenic	40 mg/kg	62.81 mg/m ³	ACGIH: 0.01 mg/m ³ TWA ₈ OSHA 0.01 mg/m ³ TWA
Chromium	133 mg/kg	939.85 mg/m ³	ACGIH: 0.5 mg/m ³ TWA ₈ OSHA: 1 mg/m ³ Ceiling
Lead	17,000 mg/kg	0.74 mg/m ³	OSHA and ACGIH: 0.5 mg/m ³ TWA ₈
Zinc	4,190 mg/kg	298.33 mg/m ³	NA

Table Notes:

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

Ceiling: Concentration in air that should not be exceeded

As indicated in this table, from a worst-case scenario:

- Benzene at Site 34 immediately above a captured air phase above contaminated soil (such as in the head space of a sample jar) could potentially reach concentrations that exceed the ACGIH TLV TWA₈ and the OSHA PEL TWA₈, and

However in regarding the results of this data evaluation, it is important to recognize the following:

- The planned work area is outdoors, with ample natural ventilation that will reduce any airborne concentrations through dilution and dispersion.
- The soil values used in this evaluation were the highest concentration previously detected in soil.

As a result of these factors, it is unlikely that workers participating in this activity will encounter any airborne concentrations of these COCs that would represent an occupational exposure concern. To monitor this exposure route, real-time direct-reading monitoring instruments will be used at Site 34 (as described in Section 7.0) during intrusive tasks because these soil-disturbing tasks are the most likely to involve releasing COCs into the air phase. In addition, area wetting techniques may be utilized to minimize inhalation of metals-contaminated dust.

6.1.1 Volatile Organic Compounds (VOCs):

Symptoms of exposure to VOCs can include abdominal pain, irritation of the skin, eyes, nose, and throat, dizziness, tremors, vomiting, gastrointestinal (GI) bleeding, enlarged liver, pallor of the extremities, and frostbite-like symptoms.

Inhalation, Ingestion, and Skin Contact: Because VOCs can be present in the air, the greatest potential and most efficient route of exposure is through inhalation of airborne vapors. For this reason, monitoring equipment will be used to monitor work area concentrations at Site 34, and PPE and basic hygiene practices (washing face and hands before leaving the site) are required. Exposure to VOCs through ingestion and direct skin contact is possible; however, worker exposure through these routes is considered unlikely, provided that workers follow personal hygiene and standard sample collection/sample handling practices and wear appropriate PPE as specified in this HASP.

6.1.2 Metals Properties and Exposure

Heavy metals are chemical elements with specific gravities that are at least 5 times the specific gravity of water. Heavy metals become toxic when they are not metabolized by the body and accumulate in soft tissues. Metal toxicity usually occurs from a sudden or unexpected exposure to a high level of a heavy metal (e.g., from careless handling, inadequate safety precautions, or an accidental spill or release of toxic material). Symptoms of metal toxicity include damaged or reduced mental and central nervous function, lower energy levels, and damage to blood composition, lungs, kidneys, liver, and other vital organs. Long-term exposure may result in slowly progressing physical, muscular, and neurological degenerative processes that mimic Alzheimer's disease, Parkinson's disease, muscular dystrophy, and multiple sclerosis.

Inhalation: Based on data from previous investigations at the site, worker exposure to airborne concentrations of metals that could represent a health concern is considered possible, but not highly likely. At Site 34, the quantity of dust that would have to be disturbed before an OEL concentration would be approached is greater than the range of what is visible to the unaided human eye (greater than 2.5 ppm). Therefore, area wetting techniques may be utilized.

Ingestion and Skin Contact: Potential metals exposure concerns may also occur through ingesting or coming into direct skin contact with contaminated soil. Worker exposure through these two routes is also considered very unlikely, provided that workers follow personal hygiene and standard sample collection/sample handling practices and wear appropriate PPE as specified in this HASP. Specific procedures to minimize ingestion and skin contact are as follows:

- 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 soil, hand tools, and sample containers.

6.2 PHYSICAL HAZARDS

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

- Lifting (strain/muscle pulls)
- Pinches and compressions
- Cuts (or other injuries associated with hand tool use)
- Vehicular and foot traffic
- Utilities
- Heat/Cold Stress
- Noise
- Natural Hazards

Each of these physical hazards is discussed in greater detail in Section 4.0 of the Tetra Tech HSGM. Additionally, information on the associated control measures for these hazards is discussed in the task-specific SWPs attached to this HASP.

6.2.1 Cuts or Other Injuries Associated with Hand Tool Use

The improper use of hand tools has been the cause of several past accidents. In particular:

- The use of knives when cutting acetate liners has resulted in lacerations to workers' hands, legs, and fingers.
- Use manufacturer-approved cutting tools (geoprobe acetate liner holder and cutter).
- Never rest an object on your knee or other part of your body when cutting.
- Keep cutting tools sharp.

6.2.2 Strains/Muscle Pulls

Site activities require moving equipment and sampling coolers that may weigh as much as 90 pounds. Worker injuries resulting from improper manual material handling activities are easily prevented through observation of proper lifting and carrying methods and utilization of material-handling equipment where necessary and suitable. These types of injuries are not only associated with the weight of the load; other considerations include how many lifts will be involved (i.e., repetitive lifting of even small loads), the size, shape, and/or configuration of the load to be lifted, and whether or not the load will need to be lifted to another height or carried to another location. Workers involved with these types of activities are to be instructed by the SSO in the following manner:

- Estimate the weight and configuration of the load (i.e., is it bulky or hard to safely grasp/lift/control).
- If the load appears to be too heavy or bulky to safely handle alone, use a mechanical lifting device or obtain help to lift the load.
- Bend at the knees (not at the waist) when attempting a lift.
- Ensure that a firm hold is obtained, and keep the load as close to the body as possible.
- Lift the load using your legs not your back.
- Avoid turning or twisting while holding a load.
- If the load is to be moved, preview the path of travel first to identify and eliminate any tripping hazards.
- Do not attempt to carry loads that obstruct the line of sight.
- When setting a load down, use the leg muscles and do not bend at the waist.
- Break loads into smaller amounts for travel to remote locations.

6.2.3 Vehicular and Equipment Traffic

Hazards associated with vehicular and equipment traffic are likely to exist during various site activities and whenever site personnel performed work on or near roadways. To minimize the potential for injuries associated with these hazards, a traffic control plan has been prepared and submitted for approval by the local authorities. A subcontractor will be present to implement the traffic control plan through the use of

warning signs, traffic cones, and flagmen. Additionally, site personnel will be instructed to maintain awareness of traffic and moving equipment when performing site activities. When working near roadways, site personnel will wear high visibility vests.

6.2.4 Heat/Cold Stress

It is always necessary for the field team to be aware of the signs and symptoms and the measures appropriate to prevent cold stress. This is addressed in detail in Section 4.0 of the Tetra Tech HSGM, which the SSO is responsible for reviewing and implementing as appropriate for this project.

6.2.5 Noise

Hearing protection will be used during all intrusive activities. The FOL will require hearing protection to ensure that drilling operations and any contributory noise levels within close proximity of the operation do not surpass 80 decibels (db). If workers need to raise their voices to communicate with fellow employees who are 2 feet away, hearing protection is required. The protection chosen must have a Noise Reduction Rating (NRR) greater than 25db. Additionally, noise dosimetry may be performed to quantify worst-case scenarios of noise levels if determined is necessary by the FOL/SSO.

6.2.6 Contact with Overhead and Underground Utilities

The potential exists for contact with overhead power lines and underground utilities such as pressurized lines, water lines, telephone lines, buried utility lines, and high voltage power lines. Soil boring activities will proceed in accordance with the Utility Locating and Excavation Clearance SOP in Health and Safety Guidance Manual Section 7.0. Utility clearances will be obtained in writing and locations identified and marked prior to activities.

6.3 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. To minimize the potential for site personnel to encounter these hazards, nesting areas in and about work areas will be avoided to the greatest extent possible. Work areas will be inspected to look for any evidence that dangerous animals may be present.

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. For information regarding tick removal procedures and symptoms of exposure, consult Section 4.0 of the Health and Safety Guidance Manual.

Contact with poisonous plants and bites or stings from poisonous insects are other potential natural hazards. Long sleeved shirts and long pants (tucked into boots), and avoiding potential nesting areas, will minimize the potential for exposure. 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 I of this HASP), and the FOL or SSO notified.

Inclement Weather

Project tasks under this scope of work will be performed outdoors, and as a result, inclement weather may be encountered. In the event that severe weather conditions arise (electrical storms, heavy rain, high winds, etc.), the FOL and/or SSO will be responsible for temporarily suspending or terminating activities until hazardous conditions no longer exist.

7.0 HAZARD MONITORING

Direct-reading instruments will be used to detect and evaluate the presence of site contaminants and other potentially hazardous conditions.

7.1 INSTRUMENTS AND USE

Instruments will be used primarily to monitor worker breathing zone areas while observing instrument action levels. Action levels are discussed below as they apply to a specific task or location.

No dust monitoring will be required for this scope of work due to limited intrusive activities. If there is a change in scope of work then this section will be revised.

7.1.1 Photoionization Detector and/or Flame Ionization Detector

A photoionization detector (PID) (or flame ionization detector [FID]) with a lamp energy of 10.6 electron volts (eV) or higher will be used at Site 34 to evaluate the presence of potential VOCs of concern. This instrument will be used to monitor potential source points and to screen the breathing zones of employees during site activities (particularly during intrusive operations such as sampling). The PID has been selected because it is capable of detecting the organic vapors of concern (A flame ionization detector [FID] may be used as an alternative to the PID).

Before starting any field activities, the background levels at the site must be determined and noted. Daily background readings will be taken away from any areas of potential contamination. These readings, any influencing conditions (weather, temperature, humidity, etc.), and site location must be documented in the field operations logbook or other site documentation (e.g., sample log sheet).

7.1.2 Frequency of Monitoring

The PID will be used initially to screen potential source areas (sample locations) to determine the presence of any detectable VOCs at Site 34. If VOCs are detected, worker breathing zones will be monitored to evaluate potential exposures. Refer to the SWPs for specific air monitoring procedures.

7.1.3 Instrument Action Levels

The use of either a PID or an FID will be acceptable at Site 34, provided that the following action levels are observed:

- PID action level: 1.75 ppm above background in breathing zoned areas for four exposures of no more than 5 minutes per day;

- FID action level: 2.75 ppm above background in breathing zone areas for four exposures of no more than 5 minutes per day.

7.2 INSTRUMENT MAINTENANCE

Maintenance activities to be conducted on the sites are as follows:

- Wiping down the outer shells of the monitoring equipment used – daily
- Battery charging – daily (as applicable)
- PID/FID filter replacement – daily

Maintenance greater than that mentioned above will require the attention of a certified technician and will not be performed on site.

7.3 INSTRUMENT CALIBRATION

Hazard monitoring instruments will be maintained and pre-field calibrated by the equipment provider (i.e., rental agency used). Operational checks and field calibration will be performed on site instruments each day prior to their use. Field calibration will be performed on instruments according to manufacturer's recommendations. Post calibrations readings will be taken and entered in Figure 7-1. These operational checks and calibration efforts will be performed in a manner that complies with the employees health and safety training, the manufacturer's recommendations, and with the applicable manufacturer standard operating procedure (which the SSO must assure are included with the instrument upon its receipt onsite). Field calibration efforts must be documented. Figure 7-1 is provided for documenting these calibration efforts. This information may instead be recorded in a field operations logbook, provided that the information specified in Figure 7-1 is recorded. This required information includes the following:

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

7.4 DOCUMENTING INSTRUMENT READINGS

The SSO is responsible for ensuring that air monitoring instruments are used in accordance with the specifications of this HASP and with manufacturer specifications/recommendations. In addition, the SSO is also responsible for ensuring that all instrument use is documented. This requirement can be satisfied

either by recording instrument readings on pre-printed sampling log sheets or in a field logbook. **This includes the requirement for documenting instrument readings that indicate no elevated readings greater than noted daily background levels (i.e., no-exposure readings).** At a minimum, the SSO must document the following information for each use of an air monitoring device:

- Date, time, and duration of the reading.
- Site location where the reading was obtained.
- Instrument used (e.g., PID, FID, LEL/O₂ meter, etc.).
- Personnel present at the area where the reading was noted.
- Other conditions that are considered relevant to the SSO (e.g., weather conditions, possible instrument interferences, etc.).

8.4 MEDICAL DATA SHEET

Each field team member, including visitors, entering the exclusion zone(s) will be required to complete and submit a copy of the Medical Data Sheet (see Attachment I of this HASP) to the SSO prior to participating in site activities. The purpose of this document is to provide site personnel and emergency responders with additional information that may be necessary to administer medical attention.

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 three-zone approach will be used during work at this site. This three zone approach will utilize an exclusion zone, a contamination reduction zone, and a support zone. It is also anticipated that this control measure will be used to control access to site work areas. Use of such controls will restrict the general public, minimize the potential for the spread of contaminants, and protect individuals who are not cleared to enter work areas.

9.1 EXCLUSION ZONE

The exclusion zone will be considered the areas of the site of known or suspected contamination. It is anticipated that the areas around wells will have the potential for contaminants brought to the surface. These areas will be marked and personnel will maintain safe distances. Once intrusive activities have been completed, the potential for exposure is again diminished and the area can then be reclassified as part of the contamination reduction zone. The exclusion zones for this project are those areas of the site where the intrusive activities are being performed plus a designated area of at least 25 feet surrounding the work area.

Access to work areas will be controlled by Tetra Tech personnel. Only authorized personnel will be allowed to enter site exclusion zones.

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. This area instead will serve as a focal point in supporting exclusion zone activities. When applicable, this area will be delineated using barrier tape, cones and/or drive poles, and postings to inform and direct facility personnel.

9.3 SUPPORT ZONE

The support zone for this project will be the area where site vehicles will be parked, equipment will be unloaded, and where food and drink containers will be maintained. In all cases, the support zones will be established at areas of the site where exposure to site contaminants would not be expected during normal working conditions or foreseeable emergencies.

9.4 SITE VISITORS

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

- Personnel invited to observe or participate in operations by Tetra Tech
- Regulatory personnel (EPA, OSHA, etc.)
- PNS Portsmouth or DOD Personnel
- Other authorized visitors

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

Once access to PNS is obtained all personnel who require site access into areas of ongoing operations will be required to obtain permission from the FOL and SSO. The prerequisites for all site visitors wishing to observe operations in progress in the exclusion zone are discussed below:

- All site visitors will be routed to the FOL, who will sign them into the field logbook.
- Information to be recorded in the logbook will include the individual's name (proper identification required), the entity which they represent, and the purpose of the visit.
- ~~All site visitors will be required to produce the necessary information supporting clearance to the site.~~
This shall include information attesting to applicable training and medical surveillance as stipulated in Section 8.0 of this document.

Once the site visitors have completed the above items, they will be permitted to enter the operational zone. Visitors are required to observe the protective equipment and site restrictions in effect at the site at the time of their visit. Any unauthorized site visitation will cause the termination of the on-site activities until the unauthorized visitor is removed from the area. Removal of unauthorized visitors will be accomplished with support from the Base Contact and Base Security. The site visitors granted access to the exclusion zones during ongoing operations will be escorted by a Tetra Tech representative (arranged for by the FOL).

9.5 SITE SECURITY

Tetra Tech will retain control over active operational areas. The FOL will serve as a focal point for site personnel, and will serve as the final line of security for the work areas. Site work will cease in the event of unauthorized personnel entering the exclusion zone. Work will remain temporarily suspended until the unauthorized visitor can be removed. The Base Contact will serve as the primary enforcement contact for removing unauthorized visitors.

9.6 SITE MAP

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

9.7 BUDDY SYSTEM

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

9.8 MATERIAL SAFETY DATA SHEET (MSDS) REQUIREMENTS

Tetra Tech personnel will provide MSDSs for the 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 these substances on site. A chemical inventory of the chemicals used on site will be developed. (See Section 5.0 of the Health and Safety Guidance Manual) A copy of the Chemical Inventory List will be provided to the Fire Department, as they would serve as primary responders to the work/storage building should the need arise. The MSDSs will then be maintained in a central location and will be available for anyone to review upon request.

9.9 COMMUNICATION

As personnel may not always be working in proximity to one another during field activities, a supported means of communication between field crews will be used as necessary.

External communication will be accomplished by using cell phones at the site but only in approved areas. External communication will primarily be used for the purpose of resource and emergency resource

communications. It is strongly recommended that cell phones be programmed with pertinent numbers prior to proposed site activities.

9.10 SAFE WORK PERMITS

The exclusion zone work conducted in support of this project will be performed using Safe Work Permits (SWPs) to guide and direct field crews on a task by task basis. An example of the SWP to be used is illustrated in Figure 9-1. Attachment III contains partially completed SWP for tasks that are to be performed as part of the investigation. Information such as field crew performing the task, date, time, procedure reviews, and equipment preparation information need to be completed by the FOL or SSO prior to the initiation of site activities. SWPs will be further supported by the daily safety meetings. This effort will ensure the site specific considerations and changing conditions are incorporated into the planning effort. Permits will require the signature of the FOL and/or SSO.

The permits review the protective measures and hazards associated with each operation. The HASP is the primary reference for selecting levels of protection and control measures. The SWP will take precedence over the HASP when more conservative measures are required based on specific site conditions.

Upon completion of work specified on the SWP, the person accepting the permit will return it to the SSO.

Any situations encountered regarding control measures taken will be noted on the permit or a separate sheet of paper and returned to the SSO for review and evaluation.

**FIGURE 9-1
SAFE WORK PERMIT**

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

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

II. Primary Hazards: _____

III. Field Crew: _____

IV. On-site Inspection conducted Yes No Initials of Inspector _____ Tetra Tech
Equipment Inspection required Yes No Initials of Inspector _____ Tetra Tech

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

Modifications/Exceptions: _____

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

Primary Route(s) of Exposure/Hazard: _____

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

VII. Additional Safety Equipment/Procedures

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

Modifications/Exceptions: _____

VIII. Site Preparation

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

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

X. Special instructions, precautions: _____

Permit Issued by: _____ Permit Accepted by: _____

10.0 SPILL CONTAINMENT PROGRAM

10.1 SCOPE AND APPLICATION

It is not anticipated that bulk hazardous materials (over 55 gallons) will be handled at any time during the activities covered by this HASP. However, as the job progresses, the potential may exist for accumulating IDW such as decontamination fluids in a central staging area. It is also anticipated that spillage of IDW would constitute a danger to human health or the environment. Therefore, this Spill Containment Program will be put in place to minimize the potential effects of such spillage. After these fluids and other materials have been characterized, they can be removed from the staging area and properly disposed.

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, the following limited areas are vulnerable to this hazard:

- Resource deployment area
- Waste transfer
- Central staging

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

10.3 LEAK AND SPILL DETECTION

To establish early detection of potential spills or leaks, a periodic walk-around by the personnel staging or disposing of drums in the resource deployment area will be conducted during working hours to visually determine that storage vessels are not leaking. The inspections will be documented in the project logbook. If a leak is detected, the contents will be transferred, using a hand pump, into a new vessel. The leak will be collected and contained using absorbents such as Oil-Dry, vermiculite, or sand, which will be stored at the vulnerable areas in conspicuously marked drums. This used material also will be containerized for disposal pending analysis.

10.4 PERSONNEL TRAINING AND SPILL PREVENTION

Site personnel will be instructed in the procedures for incipient spill prevention, containment, and collection of hazardous materials during site-specific training. The FOL and/or 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 minimum equipment that may be maintained (depending on anticipated need) at the staging areas for the purpose of supporting this Spill Prevention/Containment Program:

- Sand, clean fill, vermiculite, or other non combustible absorbent (Oil-dry)
- Drums (55-gallon United States Department of Transportation [DOT] United Nations [UN] 1A1 or 1A2)
- Shovels, rakes, and brooms

PPE for spill control may include:

- Nitrile work and inner gloves
- Tyvek coveralls
- Hard hat
- Steel-toed shoes with neoprene boot covers

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 emergency alerting procedures for that area to remove non-essential personnel.
- Employ the personal protective equipment stored at the staging area.
- Take immediate actions to stop the leak or spill by plugging or patching the container or raising the leak to the highest point in the vessel.

- Spread the absorbent material in the area of the spill, covering it completely.
- Transfer the material to a new vessel.
- Collect and containerize 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.

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 an area that has one or more of the following characteristics:

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

A Permit-Required Confined Space is a confined space that:

- Contains or has a potential to contain a hazardous atmosphere.
- Contains a material that has the potential to engulf an entrant.
- Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor 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 HSGM or call the PHSO. If confined space operations are to be performed as part of the scope of work, detailed procedures and training requirements will have to be addressed.

12.0 MATERIALS AND DOCUMENTATION

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

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

12.1 MATERIALS TO BE POSTED OR MAINTAINED AT THE SITE

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

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

Material Safety Data Sheets (MSDS) (maintained) - The MSDSs should also be in a central area accessible to the site personnel. These documents should match the listings on the chemical inventory list for 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, as directed by 29 CFR 1903.2 (a)(1), should be conspicuously posted in places where notices to employees are normally posted. Each FOL shall ensure that this poster is not defaced, altered, or covered by other material.

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

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

Medical Data Sheets/Cards (maintained) - Medical Data Sheets will be filled out by on-site personnel and filed in a central location. The Medical Data Sheet will accompany any injury or illness requiring medical attention to the medical facility.

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

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

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

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

13.0 GLOSSARY

ACGIH	American Conference of Governmental Industrial Hygienists
CFR	Code of Federal Regulations
CLEAN	Comprehensive Long-Term Environmental Action Navy
COC	Chemicals of Concern
CTO	Contract Task Order
db	Decibels
DoD	Department of Defense
DOT	Department of Transportation
DPT	Direct push technology
eV	Electron volts
FID	Flame ionization detector
FOL	Field Operations Leader
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
HSGM	Health and Safety Guidance Manual
HSM	Health and Safety Manager
IDW	Investigative-derived waste
LEL	Lower explosive limit
MSDS	Material Safety Data Sheet
NAVFAC	Naval Facilities
NRR	Noise Reduction Rating
OEL	Occupational Exposure Limit
OSHA	Occupational Safety and Health Administration
OU	Operable Unit
PAH	Polynuclear aromatic hydrocarbons
PHSO	Project Health and Safety Officer
PID	Photoionization detector
PM	Project Manager
PNS	Portsmouth Naval Shipyard
PPE	Personal protective equipment
ppm	Part per million
SSO	Site Safety Officer
SOP	Standard Operating Procedure
SWP	Safe Work Permit

TBD	To be determined
TLV	Threshold limit value
Tetra Tech	Tetra Tech NUS, Inc.
TWA ₈	Time Weighted Average (for 8 hour workday)
USEPA	United States Environmental Protection Agency
VOC	Volatile organic compound

ATTACHMENT I
MEDICAL DATA SHEET

MEDICAL DATA SHEET

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

Project Portsmouth Naval Shipyard

Name _____ Home Telephone _____

Address _____

Age _____ Height _____ Weight _____

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

Phone: _____

Drug or other Allergies: _____

Particular Sensitivities : _____

Do You Wear Contacts? _____

What medications are you presently using? _____

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

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

HIPAA took effect in 1996 and was amended April 14, 2003. Loosely interpreted, HIPAA regulates the disclosure of Protected Health Information (PHI) by the entity collecting that information. PHI is any information about health status (such as that you may report on this Medical Data Sheet), provision of health care, or other information. HIPAA also requires 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 the can accompany an injured party to the hospital.

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

Name (Print clearly) _____

Signature _____

Date _____

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

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 No

Street Address	City, State, Zip Code and Country

Project Name	Client:

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

Street Address	City, State and Zip Code

Telephone Number(s)



CORRECTIVE ACTIONS

Corrective action(s) immediately taken by unit reporting the incident:

Blank lines for corrective actions taken immediately.

Corrective action(s) still to be taken (by whom and when):

Blank lines for corrective actions still to be taken.

ROOT CAUSE ANALYSIS LEVEL REQUIRED

Root Cause Analysis Level Required: Level - 1 [] Level - 2 [] None []

Root Cause Analysis Level Definitions

Level - 1

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.

The following events may trigger a Level 1 RCA:

- 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

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.

The following events will require a Level 2 RCA:

- 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

Table with 5 columns: Title, Printed Name, Signature, Telephone Number, Date. Rows include Project Manager or Supervisor, Site Safety Coordinator or Office H&S Representative, Operating Unit H&S Representative, and 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?

Yes No

Time individual began work

_____ 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?
Telephone Number	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"/>
	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 No NA

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 No

Agency: _____ Yes No

Other: _____ Yes No

Who is responsible for reporting incident to outside agency(s)? To 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.

Incident Report Number: (From the IR Form)			
INCIDENT DETAILS			
Name of road, street, highway or location where accident occurred		Name of intersecting road, street or highway if applicable	
County	City	State	
Did police respond to the accident?		Did ambulance respond to the accident?	
Yes <input type="checkbox"/> No <input type="checkbox"/>		Yes <input type="checkbox"/> No <input type="checkbox"/>	
Name and location of responding police department		Ambulance company name and location	
Officer's name/badge #			
Did police complete an incident report? Yes <input type="checkbox"/> No <input type="checkbox"/> If yes, police report number: _____ Request a copy of completed investigation report and attach to this form.			
VEHICLE INFORMATION			
How many vehicles were involved in the accident? _____ (Attach additional sheets as applicable for accidents involving more than 2 vehicles.)			
Vehicle Number 1 – Tetra Tech Vehicle		Vehicle Number 2 – Other Vehicle	
Vehicle Owner / Contact Information		Vehicle Owner / Contact Information	
Color		Color	
Make		Make	
Model		Model	
Year		Year	
License Plate #		License Plate #	
Identification #		Identification #	
Describe damage to vehicle number 1		Describe damage to vehicle number 2	
Insurance Company Name and Address		Insurance Company Name and Address	
Agent Name		Agent Name	
Agent Phone No.		Agent Phone No.	
Policy Number		Policy Number	

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	

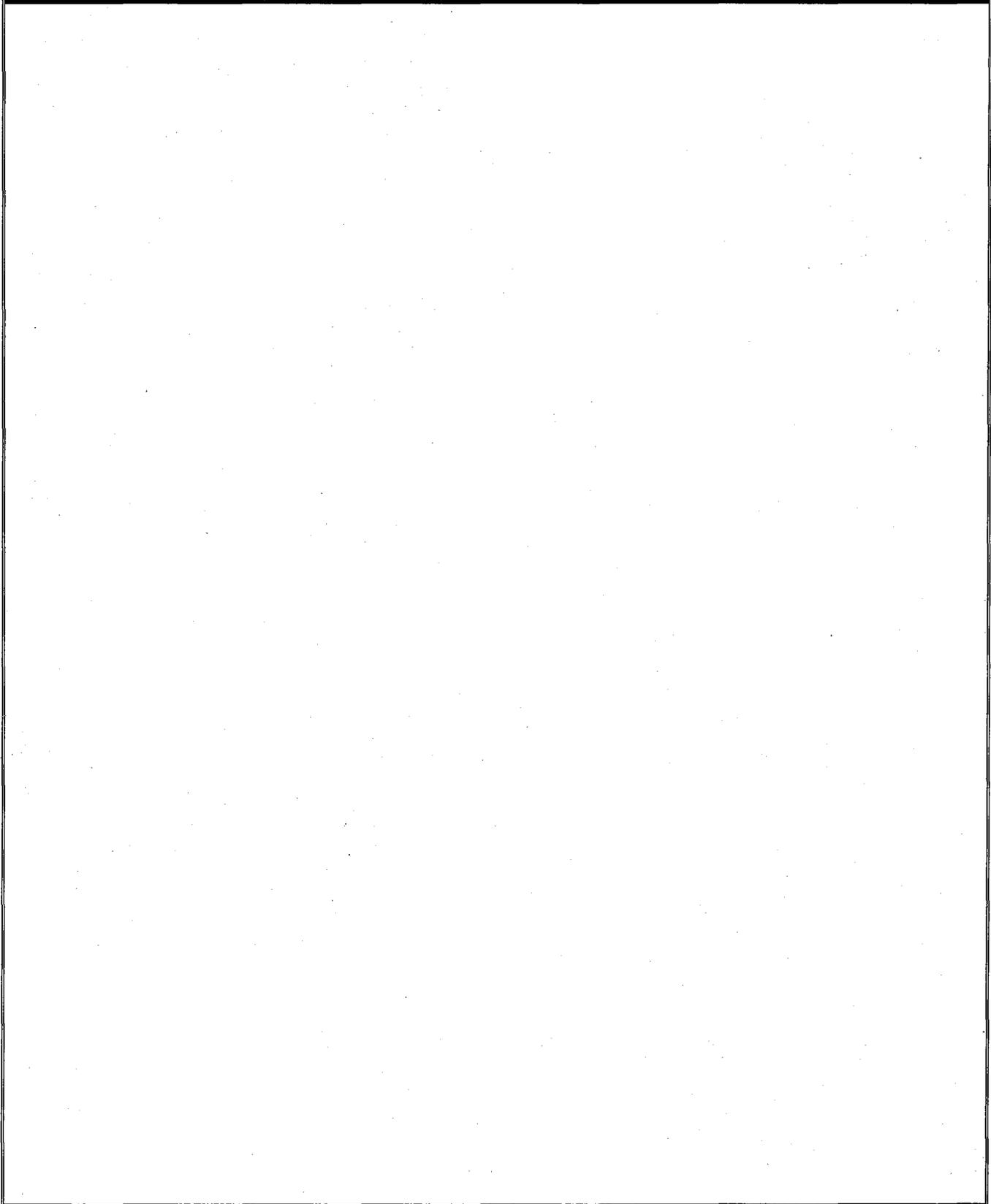
INJURIES TO NON-TETRATECH EMPLOYEES

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

COMPLETE AND SUBMIT DIAGRAM DEPICTING WHAT HAPPENED



ATTACHMENT III

SAFE WORK PERMITS

**SAFE WORK PERMIT
MOBILIZATION/DEMobilIZATION ACTIVITIES
PORTSMOUTH NAVAL SHIPYARD, KITTERY, MAINE**

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

SECTION I: General Job Scope

- I. **Work limited to the following (description, area, equipment used):** Mobilization and demobilization activities.
- II. **Primary Hazards:** Potential hazards associated with this task are primarily physical in nature including lifting, cuts and lacerations, pinches and compressions; slips, trips and falls; vehicle and foot traffic; ambient temperature extremes and inclement weather; insect and animal bites.
- III. **Field Crew:** _____
- IV. **On-site inspection conducted** Yes No Initials of Inspector _____ Tetra Tech
Equipment inspection required Yes No Initials of Inspector _____ Tetra Tech

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

- V. **Protective equipment required** **Respiratory equipment required**
 Level D Level B Yes See Reverse
 Level C Level A No

Modifications/Exceptions: None anticipated

VI. Chemicals of Concern	Hazard Monitoring	Action Level(s)	Response Measures
<u>None anticipated</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>

Primary Route of Exposure/Hazard: None

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

VII. Additional Safety Equipment/Procedures

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

Modifications/Exceptions: If overhead hazards or bump hazards or you are working near operating equipment, hard hats will be employed. If you are working in or near traffic patterns then wear high visibility vests. Use insect repellent and tape up to protect against insects and insect bites.

VIII. Site Preparation

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

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

- X. **Special instructions, precautions:** Suspend site activities in the event of inclement weather. Employ proper lifting techniques as described on Section 5 of the HASP for this task.

Permit Issued by: _____ Permit Accepted by: _____

**SAFE WORK PERMIT
SOIL SAMPLING
PORTSMOUTH NAVAL SHIPYARD, KITTERY, MAINE**

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

SECTION I: General Job Scope

- I. **Work limited to the following (description, area, equipment used):** Soil sampling
- II. **Primary Hazards:** Potential hazards associated with this task include chemical contamination, transfer of contamination, slips, trips, and falls; vehicle and foot traffic; lifting, cuts and lacerations and inclement weather.
- III. **Field Crew:** _____
- IV. **On-site Inspection conducted** Yes No Inspector Initials Tetra Tech
Equipment Inspection required Yes No Inspector Initials Tetra Tech

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

- V. **Protective equipment required** **Respiratory equipment required**
 Level D Level B Yes See Reverse
 Level C Level A No

Modifications/Exceptions: _____

VI. Chemicals of Concern	Hazard Monitoring	Action Level(s)	Response Measures
<u>VOC's (benzene)</u>	<u>PID with a 10.6 ev lamp</u>	<u>PID >1.75 ppm; FID >2.75 ppm for 4 exposure no more than 5 mins. in one 8-hour day</u>	<u>Evacuate site until normal background levels return.</u>
<u>Metals</u>	<u>Non required</u>		

Primary Route of Exposure/Hazard: None expected but wear PPE as a precaution, follow good personal hygiene and decontamination practices, and good site work practices (e.g., no hand-to-mouth actions on site, etc.) to control ingestion and skin and eye contact routes of entry.

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

VII. Additional Safety Equipment/Procedures

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

VIII. Site Preparation

- | | Yes | No | NA |
|---|--------------------------|--------------------------|--------------------------|
| Utility Locating and Excavation Clearance completed..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Vehicle and Foot Traffic Routes Cleared and Established | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Physical Hazards Barricaded and Isolated..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Emergency Equipment Staged..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

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

- X. **Special instructions, precautions:** Suspend site activities in the event of inclement weather. Dust monitoring will not be required due to the limited nature of intrusive activities. See Section 6.1 of the HASP.

Permit Issued by: _____ Permit Accepted by: _____

**SAFE WORK PERMIT
DECONTAMINATION ACTIVITIES
PORTSMOUTH NAVAL SHIPYARD, KITTERY, MAINE**

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

SECTION I: General Job Scope

- I. **Work limited to the following (description, area, equipment used):** Decontamination of sampling and DPT equipment using a pressure washer, buckets, brushes and spray bottles at the work site or designated location.
- II. **Primary Hazards:** Chemical contamination; decontamination fluids; lifting; noise; flying projectiles; vehicular and foot traffic; ambient temperature extremes; slips, trips and falls; and inclement weather.
- III. **Field Crew:** _____
- IV. **On-site Inspection conducted** Yes No Initials of Inspector _____ Tetra Tech
Equipment Inspection required Yes No Initials of Inspector _____ Tetra Tech

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

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

VI. Chemicals of Concern	Hazard Monitoring	Action Level(s)	Response Measures
<u>Liquinox (soap)</u>	<u>None Required</u>	<u>None</u>	<u>Eye irritant/flush with clean water</u>

Primary Route of Exposure/Hazard: Soap – contact - eye irritant; ingestion - nausea possible vomiting, diarrhea;
Exposure to residual site contaminants during this activity is considered negligible.

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

VII. Additional Safety Equipment/Procedures

- | | |
|---|---|
| <ul style="list-style-type: none"> Hard-hat <input type="checkbox"/> Yes <input type="checkbox"/> No Safety Glasses <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Chemical/splash goggles <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Splash Shield <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Splash suits/coveralls <input type="checkbox"/> Yes <input type="checkbox"/> No Impermeable apron <input type="checkbox"/> Yes <input type="checkbox"/> No Steel toe work shoes or boots ... <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No High-Visibility vest <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No First Aid Kit <input type="checkbox"/> Yes <input type="checkbox"/> No Safety Shower/Eyewash <input type="checkbox"/> Yes <input type="checkbox"/> No | <ul style="list-style-type: none"> Hearing Protection (Plugs/Muffs) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Safety belt/harness <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Radio/Cellular Phone <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Barricades <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Gloves (Type – Nitrile) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Work/rest regimen <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Chemical Resistant Boot Covers. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Tape up/use insect repellent <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Fire Extinguisher <input type="checkbox"/> Yes <input type="checkbox"/> No Other <input type="checkbox"/> Yes <input type="checkbox"/> No |
|---|---|

Modifications/Exceptions: Gloves – Nitrile (surgeon's style) or outer gloves, splash shields and aprons for splash protection.

VIII. Site Preparation

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

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

X. **Special instructions, precautions:** Suspend site activities in the event of inclement weather.

Permit Issued by: _____ Permit Accepted by: _____

**SAFE WORK PERMIT
IDW MANAGEMENT
PORTSMOUTH NAVAL SHIPYARD, KITTERY, MAINE**

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

SECTION I: General Job Scope

- I. **Work limited to the following (description, area, equipment used):** IDW management activities.
- II. **Primary Hazards:** Potential hazards associated with this task are primarily physical in nature including lifting, back injuries, pinches and compressions.
- IV. **Field Crew:** _____
- IV. **On-site Inspection conducted** Yes No Initials of Inspector _____ Tetra Tech
- Equipment Inspection required** Yes No Initials of Inspector _____ Tetra Tech

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

- V. **Protective equipment required** **Respiratory equipment required**
- Level D Level B Yes See Reverse
- Level C Level A No
- Modifications/Exceptions: None anticipated

VI. Chemicals of Concern	Hazard Monitoring	Action Level(s)	Response Measures
<u>VOC's (benzene)</u>	<u>PID with a 10.6 ev lamp</u>	<u>PID >1.75 ppm; FID >2.75 ppm for four exposure no more than 5 mins. in one 8-hour day</u>	<u>Evacuate site until normal background levels return.</u>
_____	_____	_____	_____
_____	_____	_____	_____

Primary Route of Exposure/Hazard: None expected but wear PPE as a precaution, follow good personal hygiene and decontamination practices, and good site work practices (e.g., no hand-to-mouth actions on site, etc.) to control ingestion and skin and eye contact routes of entry.

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

VII. Additional Safety Equipment/Procedures

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

Modifications/Exceptions: If you are using pneumatic/electric power to open drums – safety glasses are required; If power equipment is employed to move drums or you are working near operating equipment, hard hats will be employed.

VIII. Site Preparation

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

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

- X. **Special instructions, precautions:** At PNS Shipyard Haz Waste Crews collect, handle, and dispose of IDW. Tetra Tech is only responsible for the collection and labeling of containers. Shipyard personnel collect drums after Tetra Tech notifies Haz Waste personnel and arranges collection.

Permit Issued by: _____ Permit Accepted by: _____

ATTACHMENT IV
EQUIPMENT INSPECTION CHECKLIST

Equipment Inspection Checklist for Drill Rigs

Company: _____

Unit/Serial No#: _____

Inspection Date: ____ / ____ / ____

Time: ____ : ____

Equipment Type: _____

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

Project Name: _____

Project No#: _____

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

Equipment Inspection Checklist for Drill Rigs
Page 2

Unit/Serial No#: _____

Inspection Date: ____ / ____ / ____

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

Equipment Inspection Checklist for Drill Rigs

Page 3

Unit/Serial No#: _____

Inspection Date: ____ / ____ / ____

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

Equipment Inspection Checklist for Drill Rigs

Page 4

Unit/Serial No#: _____

Inspection Date: ____ / ____ / ____

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

Approved for Use Yes No See Comments

Site Health and Safety Officer

Operator

Heavy Equipment Inspection Checklist

Company: _____

Unit/Serial No#: _____

Inspection Date: ____ / ____ / ____

Time: ____ : ____

Equipment Type: _____

(e.g, earthmoving equipment - tractors backhoes, bulldozers, etc.)

Project Name: _____

Project No#: _____

Yes	No	NA	Requirements	Comments
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Seat Belts <ul style="list-style-type: none"> • Are available for intended operator and passengers (where applicable) • Seat Belts are operational? 	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Roll-Over Protection (ROPS) <ul style="list-style-type: none"> • Roll-over protection structures (ROPS) are provided on vehicles and heavy equipment (including scrapers, tractors, loaders, bulldozers, carryalls, etc.) 	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Brakes <ul style="list-style-type: none"> • Brake systems capable of stopping and holding fully loaded equipment • Parking Brake functions properly • Wheel Chocks available (where and as applicable) 	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Access <ul style="list-style-type: none"> • Non-slip steps • Grab Handles (3-Point Grab/Step Mounting Points) 	

Heavy Equipment Inspection Checklist

Page 3

Unit/Serial No#: _____

Inspection Date: ____ / ____ / ____

Yes	No	NA	Requirements	Comments
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<p>Fluid Levels:</p> <ul style="list-style-type: none"> • Engine oil • Transmission fluid • Brake fluid • Cooling system fluid • Hoses and belts • Hydraulic oil 	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<p>Fueling</p> <ul style="list-style-type: none"> • Fueling of vehicles and heavy equipment is done with the engine off. • No smoking is permitted at or near the fuel storage or refueling area. A sign is posted stating: NO SMOKING WITHIN 50 FEET. • No sources of ignition are present near the fuel storage or refueling area. • A dry chemical or carbon dioxide fire extinguisher (rated 6:BC or larger) is in a location accessible to the fueling area, no closer than 50-feet. • Safety cans available? 	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<p>Safety Guards -</p> <ul style="list-style-type: none"> • Around rotating apparatus (belts, pulleys, sprockets, spindles, drums, flywheels, chains) all points of operations protected from accidental contact? • Hot pipes and surfaces are protected from accidental contact? • High pressure pneumatic lines have safety cable to prevent thrashing should it become disconnected? 	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>Attachments</p> <ul style="list-style-type: none"> • Have the attachments designed for use (as per manufacturer's recommendation) with this equipment been inspected and are considered suitable for use? 	

Heavy Equipment Inspection Checklist
Page 4

Unit/Serial No#: _____

Inspection Date: ____ / ____ / ____

Yes	No	NA	Requirements	Comments
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Operator Qualifications <ul style="list-style-type: none"> • Does the operator have proper licensing where applicable, (e.g., CDL)? • Does the operator, understand the equipment's operating instructions? • Is the operator experienced with this equipment? • Is the operator 21 years of age or more? 	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PPE Required <ul style="list-style-type: none"> • Hardhat • Safety glasses • Work gloves • Chemical resistant gloves _____ • Steel toed Work Boots • Chemical resistant Boot Covers • Apron • Coveralls Tyvek, Saranex, cotton) _____ 	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Key(s)? Operating Manual?	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other Hazards <ul style="list-style-type: none"> • Excessive Noise Levels _____ dBA • Chemical hazards (Drilling supplies - Sand, bentonite, grout, fuel, etc.) - MSDSs available? 	

Approved for Use Yes No See Comments

 Site Health and Safety Officer

 Operator

EQUIPMENT INSPECTION - POWERED EQUIPMENT

COMPANY: _____ UNIT NO. _____

FREQUENCY: Inspect at the initiation of the project, after repairs, once every 10-day shift.

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

	Good	Need Repair	N/A
Tires or tracks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hoses and belts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cab, mirrors, safety glass	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Turn signals, lights, brake lights, etc. (front/rear) for equipment approved for highway use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Is the equipment equipped with audible back-up alarms and back-up lights?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Horn and gauges	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brake condition (dynamic, park, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fire extinguisher (Type/Rating - _____)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fluid Levels:			
- Engine oil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Transmission fluid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Brake fluid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Cooling system fluid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Windshield wipers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
- Hydraulic oil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oil leak/lube	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Coupling devices and connectors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Exhaust system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Blade/boom/ripper condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Access-ways: Frame, 3-point hand holds, ladders, walkways (non-slip surfaces), guardrails?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Power cable and/or hoist cable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Steering (standard and emergency)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Safety Guards:

Yes No

- Around rotating apparatus (belts, pulleys, sprockets, spindles, drums, flywheels, chains) all points of operations protected from accidental contact? Yes No
- Around Hot pipes and surfaces exposed to accidental contact? Yes No
- All emergency shut offs have been identified and communicated to the field crew? Yes No
- Have emergency shutoffs been field tested? Yes No
Results? _____
- Are any structural members bent, rusted, or otherwise show signs of damage? Yes No
- Are fueling cans used with this equipment approved type safety cans? Yes No
- Have the attachments designed for use (as per manufacturer's recommendation) with this equipment been inspected and are considered suitable for use? Yes No

Cleanliness:

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

Operator Qualifications (as applicable for all heavy equipment):

- Does the operator have proper licensing where applicable, (e.g., CDL)? _____
- Does the operator, understand the equipment's operating instructions? _____
- Is the operator experienced with this equipment? _____
- Is the operator 21 years of age or more? _____

Identification:

- Is a tagging system available, for positive identification, for tools removed from service? Yes No

Additional Inspection Required Prior to Use On-Site

- Does equipment emit noise levels above 90 decibels? Yes No
- Has an 8-hour noise dosimetry test been performed? Yes No
- Results of noise dosimetry: _____
- Defects and repairs needed: _____
- General Safety Condition: _____
- Operator or mechanic signature: _____

Site Safety Health Officer Signature: _____

Approved for Use: Yes No

Hand and Power Tool Checklist

Hand and Power Tool Checklist				
Yes	No	NA	Requirement	Comments
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are all tools and equipment (both company and employee owned) used by employees at their workplace in good condition?	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Any loose parts?	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Missing pins and/or bolts?	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are broken or fractured handles on hammers, axes and similar equipment replaced promptly?	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are hand tools such as chisels and punches, which develop mushroomed heads during use, reconditioned or replaced as necessary?	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are worn or bent wrenches replaced regularly?	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are appropriate handles used on files and similar tools?	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are employees made aware of the hazards caused by faulty or improperly used hand tools?	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are jacks checked periodically to ensure they are in good operating condition?	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are tool handles wedged tightly in the head of all tools?	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are tool cutting edges kept sharp so the tool will move smoothly without binding or skipping?	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are tools stored in dry, secure locations where they won't be tampered with?	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are appropriate safety glasses, face shields, etc. used while using hand tools or equipment which might produce flying materials or be subject to breakage?	
Power Tool Inspection Checklist				
Yes	No	NA	Requirement	Comments
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are grinders, saws and similar equipment provided with appropriate safety guards?	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are power tools used with the correct shield, guard, or attachment, recommended by the manufacturer?	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are portable circular saws equipped with guards above and below the base shoe? Are circular saw guards checked to assure they are not wedged up, thus leaving the lower portion of the blade unguarded?	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are rotating or moving parts of equipment guarded to prevent physical contact?	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are all cord-connected, electrically operated tools and equipment effectively grounded or of the approved double insulated type?	

Hand and Power Tool Checklist
Page 2

Yes	No	NA	Requirement	Comments
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are effective guards in place over belts, pulleys, chains, sprockets, on equipment such as concrete mixers, and air compressors?	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are portable fans provided with full guards or screens having openings 1/2 inch or less?	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is hoisting equipment available and used for lifting heavy objects, and are hoist ratings and characteristics appropriate for the task?	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are ground-fault circuit interrupters provided on all temporary electrical 15 and 20 ampere circuits, used during periods of construction?	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are pneumatic and hydraulic hoses on power operated tools checked regularly for deterioration or damage?	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Air compressor: <ul style="list-style-type: none"> • Is the air compressor equipped with a Surge Check Valve? • Pressure regulator gauge and valve? • Pressure relief valve? • Water trap and filter? 	
Yes	No	NA	Requirement	Comments
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is the chain sharp, well oiled, and properly adjusted (Chain tension)?	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is the Bar straight? <ul style="list-style-type: none"> • Are there indications of excessive wear? 	
<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	Does the chain brake lever move freely? Does chain brake stop the chain when applied?	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Does the chain move when idling?	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are the cans used to fuel the chainsaw safety cans?	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Does the on/off switch function properly?	
<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	Does the throttle lock function properly? Is the chainsaw equipped with continuous pressure throttle control?	

Hand and Power Tool Checklist
Page 3

Yes	No	NA	Requirement	Comments
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	PPE: Is the following PPE in serviceable condition? Hardhat with mesh visor and ear muffs? Safety glasses? Chainsaw chaps? Gloves with protection also on the back of the hands?	
<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	Emergency Equipment: Is a Fire extinguisher (3A:B:C) available for immediate use? Is a First-Aid Kit immediately available for use? Does it contain the minimum content as required in the HASP?	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Communication – Is an acceptable means of communication available (Hand signals, radios, air horns, etc.) that will support communication over the engine noise? Type?	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are MSDSs available for the fuels, fuel additives, and lubricating oils?	
<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	Is the operator trained in proper operation of the chainsaw? Does the operator demonstrate knowledgeable operation?	

ATTACHMENT V
OSHA POSTER

Job Safety and Health

It's the law!

EMPLOYEES:

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

EMPLOYERS:

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

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

OSHA

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



OSHA's mission is identifying and correcting hazards or complying with standards available to employers, with a maximum penalty through OSHA reported violation program and fines.

1-800-321-OSHA
www.osha-slc.gov