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HEALTH AND SAFETY PLAN PHASE I RCRA FACILITY INVESTIGATION SOLID WASTE  
MANAGEMENT UNIT 21 (SWMU 21) DRMO STORAGE LOT NSA CRANE IN  
8/1/2010  
TETRA TECH

# **Health and Safety Plan**

## **Phase I Resource Conservation and Recovery Act Facility Investigation**

### **SWMU 21 – DRMO Storage Lot at Naval Support Activity (NSA) Crane**

**Crane, Indiana**



**Naval Facilities Engineering Command  
Mid-West**

**Contract No. N62470-08-D-1001**

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**HEALTH AND SAFETY PLAN  
FOR  
PHASE I RESOURCE CONSERVATION AND RECOVERY ACT  
FACILITY INVESTIGATION  
SWMU 21 – DRMO STORAGE LOT  
NAVAL SUPPORT ACTIVITY  
CRANE, INDIANA**

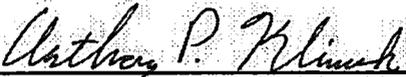
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**Prepared under:  
Contract No. N62470-08-D-1001  
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**August 2010**

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## 1.0 INTRODUCTION

The objective of this Health and Safety Plan (HASP) is to provide the safety and health requirements, restrictions, practices and procedures for Tetra Tech NUS, Inc. (Tetra Tech) personnel at Solid Waste Management Unit (SWMU) 21 at the Naval Support Activity Crane (NSA Crane), located in Crane, Indiana.

This HASP is to be used in conjunction with the Tetra Tech Health and Safety Guidance Manual (HSGM). The HSGM provides detailed information pertaining to hazard recognition and control, and Tetra Tech standard operating procedures. This HASP and the contents of the HSGM were developed to comply with the requirements stipulated in 29 Code of Federal Regulations (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 Navy 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 Southeast, Naval Facilities Engineering Command, as defined under Contract No. N62470-08-D-1001; Contract Task Order Number F274.

### 1.2 KEY PROJECT PERSONNEL AND ORGANIZATION

This section defines responsibilities for site safety and health for Tetra Tech employees engaged in onsite activities. The personnel assigned to participate in the field work have the primary responsibility for performing their work tasks in a manner that is consistent with the Tetra Tech Health and Safety Policy, the health and safety training that they have received, the contents of this HASP, and in an overall manner that protects their personal safety and health and that of their co-workers. The following persons are the

primary point of contact and have the primary responsibility for observing and implementing this HASP and for overseeing the on-site health and safety. Specific health and safety responsibilities include:

- The Tetra Tech Project Manager (PM) is responsible for the overall direction and implementation of health and safety for this work.
  - Ensuring timely resolution of project safety questions associated with Tetra Tech operations.
  - Ensuring that Tetra Tech health and safety issues are effectively communicated to personnel.
  - Monitors and evaluates the Tetra Tech subcontractor performance.
  
- The Project Health and Safety Officer (PHSO) is responsible for developing the HASP in accordance with applicable OSHA regulations. Specific responsibilities include:
  - Providing information on site contaminants and physical hazards associated with the site.
  - Establishing air monitoring and decontamination procedures.
  - Assigning personal protective equipment.
  - Determining emergency response procedures and emergency contacts.
  - Stipulating training requirements and reviewing training and medical surveillance certificates.
  - Providing standard work practices to minimize potential injuries and exposures with hazardous waste work.
  
- The Tetra Tech Field Operations Leader (FOL) is responsible for implementation of this HASP. The FOL manages field activities, executes the Work Plan, and enforces safety procedures as applicable to the Work Plan. Specifically, the FOL will:
  - Verifying training and medical status of on-site personnel in relation to site activities.
  - Assisting and representing Tetra Tech with emergency services (if needed)
  - Providing elements site-specific training for on site personnel.
  
- The Tetra Tech Site Safety Officer (SSO) or his/her representative supports the FOL concerning the aspects of health and safety including, but not limited to:
  - Coordinating health and safety activities
  - Selecting, applying, inspecting, and maintaining personal protective equipment
  - Establishing work zones and control points
  - Implementing air monitoring procedures
  - Implementing hazard communication, respiratory protection, and other associated safety and health programs

- Coordinating emergency services
  - Providing elements of site-specific training
- Compliance with the requirements stipulated in this HASP are monitored by the SSO and coordinated through the CLEAN Health and Safety Manager (HSM).

### **1.3 STOP WORK AUTHORITY**

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 Tetra Tech Health and Safety Manager (HSM). 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 has been developed as part of a planning effort to direct and guide field personnel in the event of an emergency. In the event of an emergency, the field team will evacuate and assemble to an area unaffected by the emergency and notify the appropriate local emergency response personnel/agencies. 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 Navy Remedial Project Manager (RPM) Howard Hickey and Navy site contact Thomas Brent will be notified if outside response agencies are contacted.

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

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

### **2.2 EMERGENCY PLANNING**

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

- Coordinating with local Emergency Response personnel to ensure that Tetra Tech emergency action activities are compatible with existing emergency response procedures.
- Base Fire Protection and Emergency Services will be notified of scheduled events and activities.
- Because the nearest hospital/medical center is well over 4 minutes away, a CPR/First Aid trained personnel must be on-site during the times work is being conducted.

- Establishing and maintaining information at the project staging area (support zone) for easy access in the event of an emergency, including:
  - Chemical Inventory (of chemicals used onsite)
  - 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.
- Educating site workers to the hazards and control measures associated with planned activities at the site, and providing early recognition and prevention, where possible.
- Periodically performing practice drills to ensure site workers are familiar with incidental response measures.
- Providing the necessary equipment to safely accomplish identified tasks.

## **2.3 EMERGENCY RECOGNITION AND PREVENTION**

### **2.3.1 Recognition**

Emergency situations that may be encountered during site activities will generally be recognized by visual observation. Visual observation will also play a role in detecting potential exposure events to some chemical hazards. To adequately recognize chemical exposures, site personnel must have a clear knowledge of signs and symptoms of exposure associated with the principle site contaminants of concern as presented in this HASP. Tasks to be performed at the site, potential hazards associated with those tasks and the recommended control methods are discussed in detail in Sections 5.0 and 6.0. Additionally, early recognition of hazards will be supported by daily site surveys to eliminate any situation predisposed to an emergency. The FOL and/or the SSO will be responsible for performing surveys of work areas prior to initiating site operations and periodically while operations are being conducted. Survey findings are documented by the FOL and/or the SSO in the Site Health and Safety logbook, however, site personnel will be responsible for reporting hazardous situations. Where potential hazards exist, Tetra Tech will initiate control measures to prevent adverse effects to human health and the environment.

The above actions will provide early recognition for potential emergency situations, and allow Tetra Tech to investigate 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.

### **2.3.2 Prevention**

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

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

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

In the event of an emergency requiring evacuation, personnel will immediately stop activities and report to the designated safe place of refuge unless doing so would pose additional risks. When evacuation to the primary place of refuge is not possible, personnel will proceed to a designated alternate location and remain until further notification from the 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, Navy RPM Howard Hickey and Navy site contact Thomas Brent will be informed of any incident or accident that requires medical attention.

**TABLE 2-1  
EMERGENCY CONTACTS  
CRANE, INDIANA**

CONTACT	TELEPHONE
Base Emergency Numbers* (Fire Department, Base Security, Ambulance) <ul style="list-style-type: none"> <li>• When dialing from an on-base phone</li> <li>• When dialing from cell or off-base phone</li> </ul>	<p align="center"><b>911</b></p> (812) 854-1333
Base Environmental Office	(812) 854-3114
Bedford Ambulance	(812) 279-6545
Bloomington Hospital (Bloomington, Indiana)	(812) 336-9515
Bedford Medical Center (Bedford, Indiana)	(812) 275-1200
Indiana Utility One Call	811
Poison Control Center	(800) 222-1222
National Response Center	(800) 424-8802
Base Contact, Thomas Brent	(812) 854-6160 - office (813) 296-6482 - cell
Project Manager, Tony Klimek	(513) 557-5057 - office (513) 464-2967 - cell
Tetra Tech Field Operations Leader, George Ten Eyck	(513) 470-8232 - cell
Tetra Tech Site Security Officer, Lauren Foster	(937) 238-6743 - cell
Tetra Tech Office, Cincinnati	(513) 251-0200
CLEAN Health and Safety Manager, Matthew M. Soltis, CIH, CSP	(412) 921-8912
Tetra Tech Project Safety Officer, James K. Laffey	(412) 921-8678 - office (412) 370-6668 - cell

**\*NOTE:** On-base extension 1333 is the primary emergency phone number. From an NSA Crane phone, on Base extensions must be preceded by "854". Off-base numbers can only be reached by dialing "991" first. Furthermore, the emergencies involving site activities should subsequently be reported to the Environmental Protection Department (x -3114/1132/6160).

## 2.6 EMERGENCY ROUTE TO HOSPITAL

**Bloomington Hospital**  
601 W. 2nd St.  
P.O. Box 1149  
Bloomington, Indiana 47402

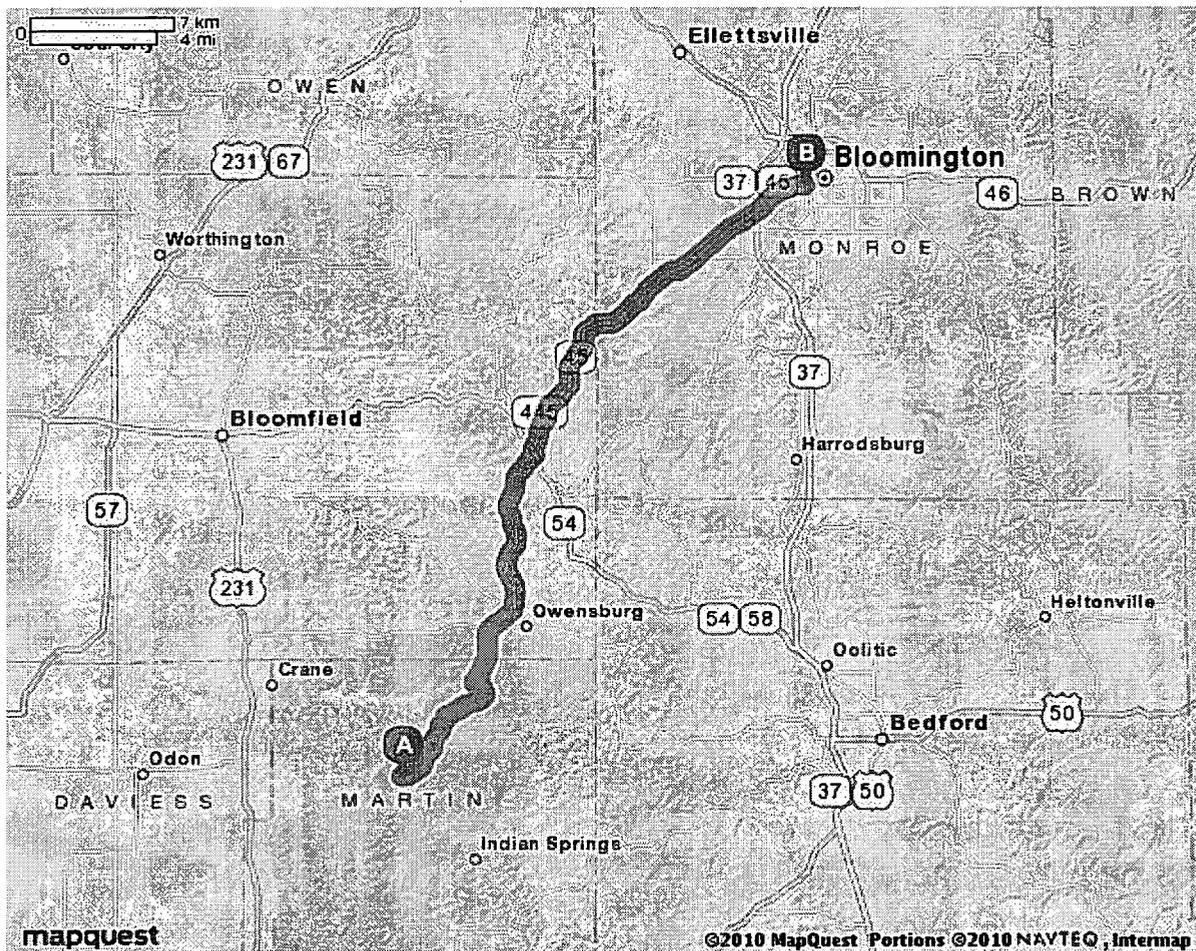
30.63 miles - about 54 minutes

- Exit NSA Crane on H-45 through the Bloomington Gate.
- Follow Highway 45 North to Bloomington at Highway 45 and Highway 37.
- Continue going straight over the overpass (Bloomfield Rd).
- Follow Bloomfield Road North; this road turns into 2nd St
- Follow 2nd Street, hospital will be on the right

**FIGURE 2-1**

### **BLOOMINGTON HOSPITAL ROUTE MAP VIA BLOOMINGTON GATE**

**Bloomington Gate is open 24 hours.**



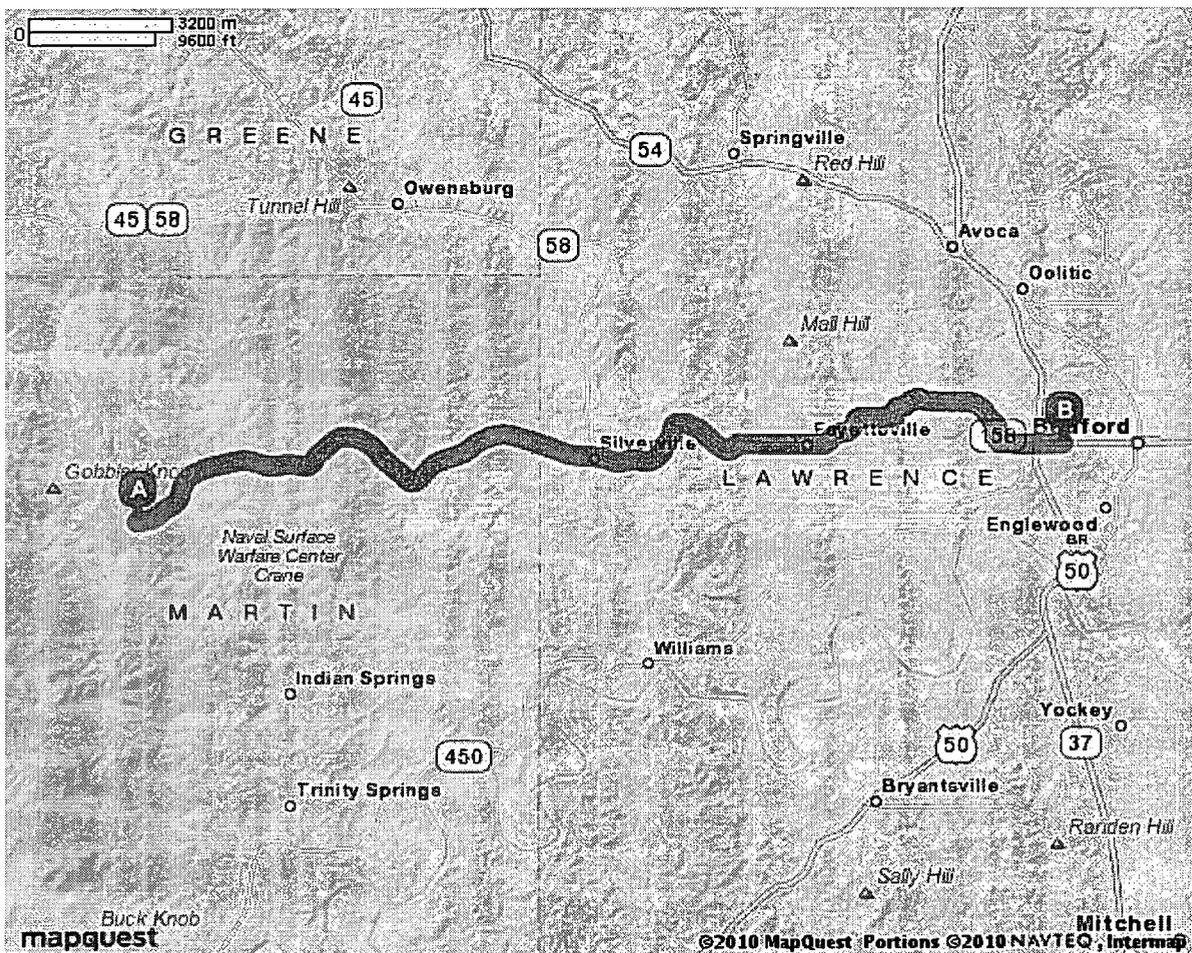
**Bedford Medical Center**  
2900 16th Street  
Bedford, Indiana 47421

19.2 miles - about 40 minutes

- Exit the base on H-58, through the Bedford Gate.
- Head East on State Highway 158.
- State Highway 158 becomes 16th Street upon entering the City of Bedford.
- The medical center is on the right shortly after Plaza Drive.

**FIGURE 2-2**  
**MAP TO**  
**BEDFORD MEDICAL CENTER ROUTE MAP VIA BEDFORD GATE**

Bedford Gate is open from 0600 - 0830 and 1500 - 1800 hours



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

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

Tetra Tech personnel will be working in close proximity to each other at NSA Crane. 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 site 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 emergency contacts listed in Table 2-1 and report the incident. Give the emergency operator the location of the emergency, the type of emergency, the number of injured, and a brief description of the incident. Stay on the phone and follow the instructions given by the operator. The operator will then notify and dispatch the proper emergency response agencies.

- On Base, call 854-1333\* and other 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. In addition, due to the fact that the nearest hospital/medical center is over 4 minutes away, a CPR/First Aid trained personnel must be on-site during the times work is being conducted.

## **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 and in the requirements of OSHA's Bloodborne Pathogen Standard (29 CFR 1910.1030). Medical attention above First-Aid level support will require assistance from the designated emergency response agencies. **If the emergency involves personnel exposures to chemicals, follow the steps provided in Figure 2-3.**

### **2.9.1 Medical Data Sheet**

Attachment I contains a Medical Data Sheet. Any pertinent information regarding allergies to medications or other special conditions will be provided to medical services personnel. This information is listed on Medical Data Sheets filed onsite. If an exposure to hazardous materials has occurred, provide information on the chemical, physical, and toxicological properties of the subject chemical(s) to medical service personnel.

If needed and once completed, the appropriate personnel on the incident report form should be notified and their signatures obtained. Once signed, this form should be stored onsite and filed. This form contains information relating to employee health and must be used in a manner that protects the confidentiality of the employee to the extent possible.

**FIGURE 2-3**  
**POTENTIAL EXPOSURE PROTOCOL**

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

In the event of a personnel injury or accident:

- Rescue, when necessary, employing proper equipment and methods.
- Give attention to emergency health problems -- breathing, cardiac function, bleeding, and shock.
- Transfer the victim to a medical facility designated in this HASP by suitable and appropriate conveyance (i.e. ambulance for serious events)
- Obtain as much exposure history as possible (a Potential Exposure report is attached).
- If the injured person is a Tetra Tech employee, call the medical facility and advise them that the patient(s) is/are being sent and that they can anticipate a call from the WorkCare physician. WorkCare will contact the medical facility and request specific testing which may be appropriate. WorkCare physicians will monitor the care of the victim. Site officers and personnel should not attempt to get this information, as this activity leads to confusion and misunderstanding.
- Call WorkCare at 1-800-455-6155 and enter Extension 109, being prepared to provide:
  - Any known information about the nature of the injury.
  - As much of the exposure history as was feasible to determine in the time allowed.
  - Name and phone number of the medical facility to which the victim(s) has/have been taken.
  - Name(s) of the involved Tetra Tech employee(s).
  - Name and phone number of an informed site officer who will be responsible for further investigations.
  - Fax appropriate information to WorkCare at (714) 456-2154.
- Contact Corporate Health and Safety Department (Matt Soltis) and Human Resources Department (Marilyn Duffy) at (412) 921-7090.

As data is gathered and the scenario becomes more clearly defined, this information should be forwarded to WorkCare.

WorkCare will compile the results of data and provide a summary report of the incident. A copy of this report will be placed in each victim's medical file in addition to being distributed to appropriately designated company officials.

Each involved worker will receive a letter describing the incident but deleting any personal or individual comments. A personalized letter describing the individual findings/results will accompany this generalized summary. A copy of the personal letter will be filed in the continuing medical file maintained by WorkCare.

**FIGURE 2-3 (continued)  
WORKCARE  
POTENTIAL EXPOSURE REPORT**

Name: \_\_\_\_\_ Date of Exposure: \_\_\_\_\_

Social Security No.: \_\_\_\_\_ Age: \_\_\_\_\_ Sex: \_\_\_\_\_

Client Contact: \_\_\_\_\_ Phone No.: \_\_\_\_\_

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

**I. Exposing Agent**  
Name of Product or Chemicals (if known): \_\_\_\_\_

Characteristics (if the name is not known)  
Solid            Liquid            Gas            Fume            Mist            Vapor

**II. Dose Determinants**  
What was individual doing? \_\_\_\_\_  
How long did individual work in area before signs/symptoms developed? \_\_\_\_\_  
Was protective gear being used? If yes, what was the PPE? \_\_\_\_\_  
Was their skin contact? \_\_\_\_\_  
Was the exposing agent inhaled? \_\_\_\_\_  
Were other persons exposed? If yes, did they experience symptoms? \_\_\_\_\_

**III. Signs and Symptoms (check off appropriate symptoms)**

**Immediately With Exposure:**

Burning of eyes, nose, or throat	Chest Tightness / Pressure
Tearing	Nausea / Vomiting
Headache	Dizziness
Cough	Weakness
Shortness of Breath	

**Delayed Symptoms:**

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

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

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

Have symptoms: (please check off appropriate response and give duration of symptoms)  
Improved: \_\_\_\_\_ Worsened: \_\_\_\_\_ Remained Unchanged: \_\_\_\_\_

**V. Treatment of Symptoms (check off appropriate response)**  
None: \_\_\_\_\_ Self-Medicating: \_\_\_\_\_ Physician Treated: \_\_\_\_\_

## 2.10 INJURY/ILLNESS REPORTING

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

### 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.

TOTAL is maintained on the Tetra Tech Intranet site at <https://my.tetrattech.com/>

Once on the "My Tetrattech" site, TOTAL can be found under the Health and Safety tab, Incident Reporting section, select "Report an Incident (TOTAL)". This will connect you directly to TOTAL. TOTAL can also be accessed directly from the internet using the following web address: <http://totalhs.tetrattech.com/>

**Note:** When using the system outside the Tetra Tech intranet system or when operating in a wireless mode, a VPN connection will be required. The speed of the application may be affected dependent upon outside factors such as connection, signal strength, etc. Enter the system using your network user name and password. The user name should be in the following format - TT\nickname.lastname.

## 3.0 SITE BACKGROUND

### 3.1 SITE HISTORY

NSA Crane is located in Crane, Indiana approximately 75 miles southwest of Indianapolis and 71 miles northwest of Louisville, Kentucky. The facility encompasses approximately 100 square miles (64,463 acres) in Daviess, Greene, Lawrence, and Martin Counties. It is located in a rural, sparsely populated area. The acreage surrounding the base is either wooded or farmed land. The facility, originally called Naval Ammunition Depot (NAD) Burns City, was opened in 1941 to serve as an inland ammunition production and storage center. Today NSA Crane's mission is to "provide quality and responsive engineering, technical and material support to the Fleet for combat subsystems, equipment and components, microelectronic technology, microwave components, electronic warfare, acoustic sensors tests, engineering pyrotechnics, small arms, electronic module test and system command." Under the Single Service Management Program, a segment of the Center's mission is to provide support (including environmental protection) to the Crane Army Ammunition Activity (CAAA). The Army is tasked with the production and renovation of conventional ammunition and related items, the performance of manufacturing, engineering, and product quality assurance to support production; and the storage, shipment, demilitarization, and disposal of conventional ammunition and related components. Because of the nature of the Army's operations, CAAA contributes significant financial support for the environmental program through an Inter-Service Support Agreement.

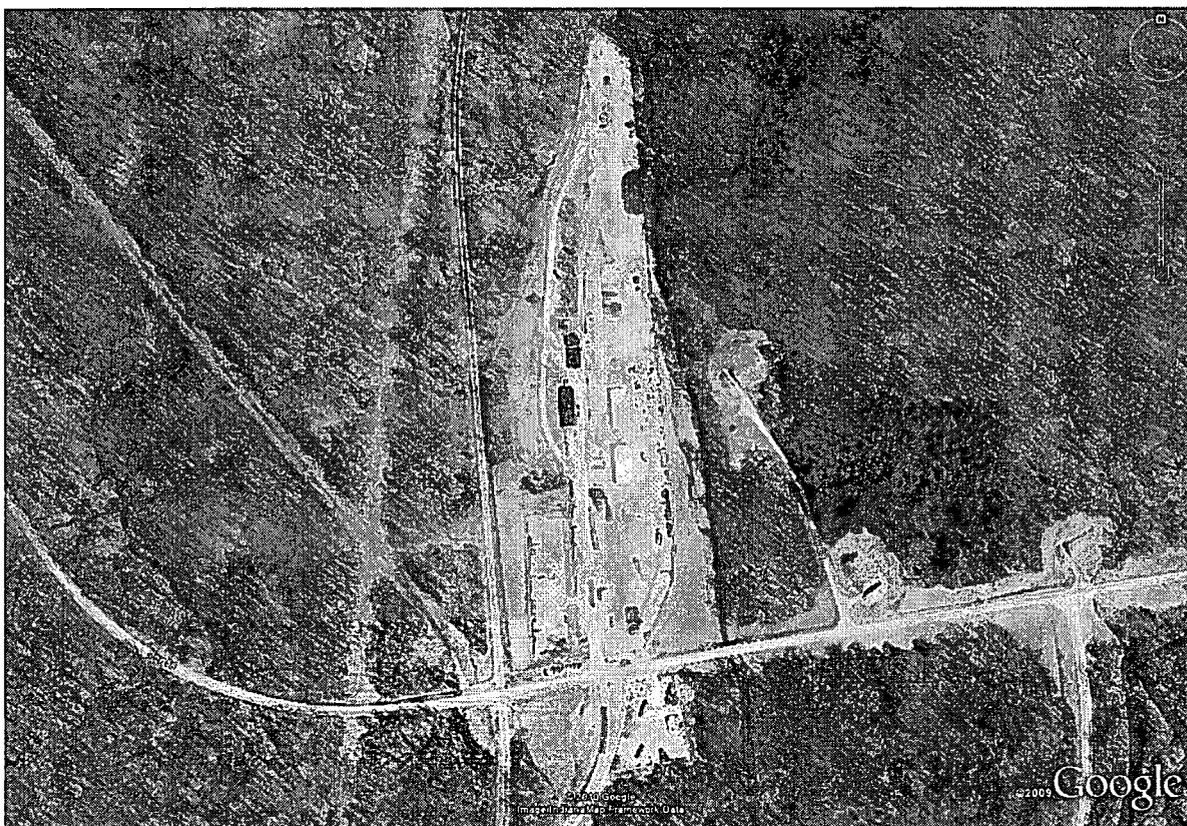
### 3.2 SWMU 21

SWMU 21 is an approximate 20-acre material recycling facility that is currently and was historically used for processing of scrap metal, wood, lead, cardboard, and paper. The site has been in operation since the late 1940s. Current physical structures at the site include two processing buildings, an office and restroom building, abandoned paper baler building, two truck/railroad scales and one scale house, an inactive oil/water separator (OWS), and paved and unpaved storage areas. Formerly, separated water from the inactive OWS was discharged into Haynes Branch, a creek located immediately east of SWMU 21. The OWS is no longer functional. Two inactive metal balers and a second scale house were demolished and removed from the site in 2009.

Scrap metal processed at the site includes shells, bomb casings, gun mounts, barrels, and other ordnance materials that were cleaned of ordnance residues prior to delivery to SWMU 21. Historically, SWMU 21 operated as a recycling facility for old treated wood pallets, railroad ties, and other wood scrap materials, rather than as a manufacturing facility. Pentachlorophenol (PCP)-coated wood pallets and empty ammunition cases were stored in bulk at the DRMO Storage Lot. Wooden railroad ties or other

wood materials process at SWMU 21 may also have contained wood preservative mixtures of copper chromium arsenate (CCA) or creosote. SWMU 21 operations also involved short-term storage of materials with waste oils, including metal shavings, some of which may have contained polychlorinated biphenyls (PCBs). Old site drawings show a concrete slab for lead storage; however, Crane personnel reported that the lead stored at the SWMU 21 was containerized, typically in drums, and batteries were never processed at SWMU 21.

**FIGURE 3-1**  
**Site Aerial Photograph**



## 4.0 SCOPE OF WORK

This section describes the project tasks that will be performed at NSA Crane – SWMU 21. The planned activities involved in this effort are presented in detail in the Sampling and Analysis Plan developed for the project. If new tasks are to be performed at the site this section will be modified accordingly.

Specific tasks to be conducted at SWMU 21 include the following:

- Mobilization/Demobilization
- Monitoring Well Installation and Development via Direct Push Technology (DPT)
- Test Pit Excavation
- Multimedia Sampling
  - Surface Soil
  - Subsurface Soil
  - Sediment
  - Groundwater
  - Surface Water
- Investigation-Derived Waste (IDW) Management
- Global Positioning System (GPS) Locating Survey

For more detailed description of the associated tasks refer to the individual Work Plans. If additional tasks are determined to be necessary, this HASP will need to be amended and a hazard evaluation of the additional tasks performed.

## **5.0 IDENTIFYING AND COMMUNICATING TASK-SPECIFIC HAZARDS AND GENERAL SAFE WORK PRACTICES**

The purpose of this section is to identify the anticipated hazards and appropriate hazard prevention/hazard control measures that are to be observed for each planned task or operation. These topics have been summarized for each planned task through the use of task-specific Safe Work Permits (SWPs), which are to be reviewed in the field by the SSO with the task participants prior to initiating any task. Additionally, potential hazard and hazard control matters that are relevant but are not necessarily task-specific are addressed in the following portions of this section.

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

### **5.1 GENERAL SAFE WORK PRACTICES**

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

- Eating, drinking, chewing gum or tobacco, taking medication, or smoking in contaminated or potentially contaminated areas or where the possibility of the transfer of contamination exists is prohibited.
- Wash hands and face thoroughly with soap and water upon leaving a contaminated or suspected contaminated area.
- The use of waterless hand cleaning products is acceptable if followed by actual hand-washing as soon as practicable upon exiting the site.
- Avoid contact with potentially contaminated substances including puddles, pools, mud, or other such areas.
- Avoid, kneeling on the ground or leaning or sitting on equipment.
- Keep monitoring equipment away from potentially contaminated surfaces.
- Plan and mark entrance, exit, and emergency evacuation routes.

- Rehearse unfamiliar operations prior to implementation.
- Buddies should maintain visual contact with each other and with other on-site team members by remaining in close proximity to assist each other in case of emergency.
- Establish appropriate safety zones including support, contamination reduction, and exclusion zones.
- Minimize the number of personnel and equipment in contaminated areas (such as the exclusion zone).
- Observe co-workers for signs of toxic exposure and heat or cold stress.
- Inform co-workers of potential symptoms of illness, such as headaches, dizziness, nausea, or blurred vision.

## 5.2 DPT SAFE WORK PRACTICES

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

- Identify underground and overhead utilities and buried structures before commencing any DPT rig operations.
- Follow the Tetra Tech Utility Locating and Excavation Clearance Standard Operating Procedure found in Section 7.0 of the HSGM.
- DPT rigs will be inspected by the SSO prior to beginning of work. See Attachment III, DPT Equipment Inspection Checklist.
- Repairs will be corrected prior to use.
- Additional inspections will be performed at least at the beginning of every 5 or 10-day shift, or following any repairs or significant maintenance activities.
- Ensure that the machine guarding is in place and properly adjusted.
- Block the DPT rig wheels and use levelers to prevent inadvertent movement.

- The work area around the point of operation will be cleared to the extent possible to remove any trip hazards.
- Establish an equipment staging and laydown plan to keep the work area clear of clutter and slips, trips, and fall hazards.
- Minimize contact to the extent possible with contaminated tools and environmental media.
- Potentially contaminated tools will be placed on polyethylene sheeting for storage and wrapped for transport to the equipment decontamination area
- Only qualified operators and knowledgeable ground crew personnel will participate in the operation of the DPT rig.
- During maintenance, use only manufacturer provided/approved equipment (i.e. auger flight connectors, etc.)
- Only personnel absolutely essential to the work activity will be allowed in the exclusion zone.
- Equipment used within the exclusion zone will undergo decontamination and evaluation by the FOL and/or the SSO.
- Motorized equipment will be fueled prior to the commencement of the day's activities.
- When not in use, the DPT rig will be shutdown and emergency brakes set and wheels chocked.
- Investigative areas will be restored to equal or better condition than original or remove any contamination brought to the surface and to remove any physical hazards.

### **5.3 TEST PIT EXCAVATION –SAFE WORK PRACTICES**

Identify underground utilities and buried structures before the commencement of any excavation activities. Provisions to accommodate the clearance procedure are provided in the Tetra Tech Utility Locating and Excavation Clearance Standard Operating Procedure provided in Section 7.0 of the HSGM.

- The FOL is responsible for ensuring that utility locations/marks on the ground are maintained so they remain visible (repaint, pin flags, etc.), and to annotate maps with these locations.

- When marks are placed on the ground and are cleared, there is only a limited leeway (2-feet) to deviate from the marked locations.
- Check for overhead clearance including the range of the intended swing patterns of excavators to ensure they are a safe distance from overhead power lines.
- A minimum clearance of 20 feet at any point of the swing must be maintained from overhead power lines unless positive control of the energy source is obtained.
- Excavation boundaries will be marked with appropriated signs warning of construction activities in progress.
- Signs shall be used also for informational purposes as well to direct personnel, to indicate PPE requirements.
- Heavy equipment will be subjected to an equipment inspection, upon arrival on-site and prior to leaving.
- Use the Heavy Equipment Inspection Checklist provided in Attachment III of this HASP.
- Establish traffic patterns for foot and small vehicular traffic out of the pattern for heavy equipment.
- Traffic patterns for heavy equipment will be constructed to maintain traffic flow a minimum of 10-feet from excavation boundaries.
- Ground personnel will be provided with reflective vests to increase visibility and air horns to signal heavy equipment during operation.
- The swing radius of a fully extended boom plus 5-feet will be marked using Pin flags or some other visual indicator so personnel are aware of the restricted area.
- Ground activities shall be supported with the use of a designated ground spotter controlling the actions of the heavy equipment.
- Personnel are ***prohibited*** from entering any excavations.

- When taking samples from test pits the excavator operator will position the bucket so that it is resting on the ground, and will shut down the excavator.
- Samples will then be collected from the excavator bucket.
- Support functions (sampling and screening stations) will be maintained a minimum distance from the excavator and swing pattern of the fully extended boom plus 5-feet.
- Only qualified operators and knowledgeable ground crew personnel will participate in the operation of test pitting.
- Only personnel absolutely essential to the work activity will be allowed in the exclusion zone. Site visitors will be escorted.

Areas subjected to subsurface investigative methods will be restored to equal or better condition than original to remove any contamination brought to the surface and to remove any 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 AND CONTROLS

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

### 6.1 CHEMICAL HAZARDS

Based on site operational data and historical information, certain metals, certain chlorinated and non-chlorinated VOCs, and certain SVOCs (PAHs, and PCBs) may have been released from processes at the site. However, previous environmental inspections and investigations conducted at SWMU 21 show that specifically PCBs, barium, and lead are the primary chemicals of concern. Table 6-1 shows the chemicals of concern (COCs), concentrations detected in previous investigations, and the current Occupational Exposure Limits (OELs) from the OSHA Personal Exposure Limits (PEL) and the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values.

**TABLE 6-1  
COPC WITH CURRENT OELs**

Contaminant of Concern	Highest Levels Detected On Site	Current OSHA PEL and ACGIH TLV
PCBs	2.9 mg/kg in soil	OSHA: 0.05 mg/m <sup>3</sup> , TWA <sub>8</sub>
Lead	5.9 mg/L in water	OSHA & ACGIH: 0.05 mg/m <sup>3</sup> , TWA <sub>8</sub>
Barium	27 mg/L in water	OSHA & ACGIH: 0.01 mg/m <sup>3</sup> , TWA <sub>8</sub>

#### Table Notes:

TWA<sub>8</sub>: Time-weighted average exposure concentration for a conventional 8-hour work period that is not to be exceeded.

mg/kg: milligrams per kilogram

#### 6.1.1 Metal Properties and Exposure

Heavy metals are chemical elements with a specific gravity that is at least 5 times the specific gravity of water. Heavy metals become toxic when they are not metabolized by the body and accumulate in the soft tissues. Metal toxicity usually occurs from a sudden or unexpected exposure to a high level of the 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.

### 6.1.2 PCB Properties and Exposures

Polychlorinated biphenyls are mixtures of up to 209 individual chlorinated compounds (known as congeners). There are no known natural sources of PCBs. PCBs are either oily liquids or solids that are colorless to light yellow. Some PCBs can exist as a vapor in air. PCBs have no known smell or taste. Many commercial PCB mixtures are known in the U.S. by the trade name Aroclor.

The most commonly observed health effects in people exposed to large amounts of PCBs are skin conditions such as acne and rashes. Studies in exposed workers have shown changes in blood and urine that may indicate liver damage.

### 6.1.3 Potential Routes of Exposure

**Inhalation:** Based on the data from previous investigations at this worksite, worker exposure to airborne concentrations that could represent a health concern is considered to be possible, but not likely. Therefore, recognizing that the site conditions may present a health concern, a direct reading instrument will be used to monitor the breathing zone. Instruments to be used and action levels are discussed in Section 7.0. However, it is important to keep in mind that the planned work area is outdoors, with ample natural ventilation that will reduce any airborne particulates through dilution and dispersion

As a result of this, it is very unlikely that workers participating in these activities will encounter any airborne concentrations of the above metals that would represent an occupational exposure concern. Examples of onsite practices that are to be observed that will protect workers from exposure via inhalation include:

- Proper PPE use and hygiene care
- Proper airborne monitoring
- Use of area wetting techniques when visible dust is generated

**Ingestion and Skin Contact:** Potential exposure concerns to these Contaminants of Concern (COC) may also occur through ingesting or coming into direct skin contact with contaminated soils. However, the likelihood of worker exposure concerns through these two routes are considered very unlikely, provided that workers follow good personal hygiene and standard good sample collection/sample handling practices, and wear appropriate PPE as specified in this HASP. Examples of onsite practices that are to be observed that will protect workers from exposure via ingestion or skin contact include the following:

- No hand-to-mouth activities on site (eating, drinking, smoking, etc.)

- Washing hands upon leaving the work area and prior to performing any hand to mouth activities
- Wearing proper gloves whenever handling potentially-contaminated media, including soils, hand tools, and sample containers.

## **6.2 PHYSICAL HAZARDS**

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

- Slip, trips, and falls
- Contact with overhead and underground utilities (electric lines, gas lines, water lines, etc.)
- Strain/muscle pulls from heavy lifting
- Ambient temperature extremes (heat stress)
- Pinch/compression points
- Vehicular and equipment traffic
- Inclement weather
- Heavy equipment hazards (pinch/compression points, rotating equipment, etc.)
- Noise in excess of 85 decibels (dBA)
- Natural hazards (snakes, ticks, poisonous plants, etc.)

These hazards are discussed further below, and are presented relative to each task in the task-specific Safe Work Permits.

### **6.2.1 Slips, Trips, and Falls**

During various site activities there is a potential for slip, trip, and fall hazards associated with wet, steep, or unstable work surfaces. To minimize hazards of this nature, personnel required to work in and along areas prone to these types of hazards will be required to exercise caution, and use appropriate precautions (restrict access, guardrails, life lines and/or safety harnesses) and other means suitable for the task at hand. Site activities will be performed using the buddy system.

### **6.2.2 Contact with Utilities**

Underground utilities such as pressurized lines, water lines, telephone lines, buried utility lines, and high voltage power lines are known to be present throughout the facility. The Tetra Tech Project Manager (PM) and FOL will work with the subcontractor and the Navy to have the utilities marked in the area before beginning underground sampling. A digging permit will be obtained from NSA Crane prior to intrusive underground investigations. Please refer to the Standard Operating Procedure (SOP) for Utility Clearance in the Tetra Tech HSGM for more information.

### **6.2.3 Strain/Muscle Pulls from Heavy Lifting**

During execution of planned activities there is some potential for strains, sprains, and/or muscle pulls due to the physical demands and nature of this site work. To avoid injury during lifting tasks personnel are to lift with the force of the load carried by their legs and not their backs. When lifting or handling heavy material or equipment use an appropriate number of personnel. Keep the work area free from ground clutter to avoid unnecessary twisting or sudden movements while handling loads.

### **6.2.4 Ambient temperature extremes (heat stress)**

Because of the geographical location of the planned work, the likely seasonal weather conditions that will exist during the planned schedule, and the physical exertion that can be anticipated with some of the planned tasks, it will be necessary for the field team to be aware of the signs and symptoms and the measures appropriate to prevent heat 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 on this project.

### **6.2.5 Pinch/Compression Points**

Handling of tools, machinery, and other equipment on site may expose personnel to pinch/compression point hazards during normal work activities. Where applicable, equipment will have intact and functional guarding to prevent personnel contact with hazards. Personnel will exercise caution when working around pinch/compression points, using additional tools or devices (e.g., pinch bars) to assist in completing activities.

### **6.2.6 Inclement Weather**

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

### **6.2.7 Heavy Equipment Hazards (Pinch/compression points, rotating equipment, etc.)**

Often the hazards associated with drilling operations are the most dangerous to be encountered during site activities. The SSO will thoroughly discuss safe drilling procedures during the pre-activities training session.

### **6.2.8 Noise in excess of 85 dBA**

Some sampling procedures/heavy equipment operation causes noise in excess of 85 decibels. When sampling at the drilling equipment or utilizing heavy equipment that causes noise, use hearing protection. The use of hearing protection outside of 25 feet from the heavy equipment should be incorporated under the following condition: If you have to raise your voice to talk to someone who is within 2 feet of your location, hearing protection must be worn.

### **6.2.9 Flying Projectiles**

The use of some heavy equipment and power washers carry a risk of flying projectiles. Use eye and face protective equipment when operating such equipment. The other personnel must be restricted from the area.

## **6.3 NATURAL HAZARDS**

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

### **6.3.1 Insect/Animal Bites and Stings**

Ticks, insect/animal bites, and stings are difficult to control given the climate and environmental setting of NSA Crane. However, in an effort to minimize this hazard the following control measures will be enacted where possible.

- Commercially available bug sprays and repellents will be used whenever possible. Commercially available repellents may be used providing these components are not part of the analyte listing. Products such as DEET should not be applied directly to the skin due to potential irritation. This product, when permitted for use, should be applied over clothing articles.
- Loose fitting light colored clothing with long sleeves, where possible should be worn. This will also aid in insect control by providing a barrier between the field person and the insects and to provide easy recognition of crawling insects against the lighter background. Pant legs should be secured to the work-boots using duct tape to prevent access by ticks. Mosquito nets are also recommended for use when commercially available repellents are not permitted.

- Clothing/limited body checks for ticks and other crawling insects should be conducted upon exiting heavily vegetated areas. Workers should perform a more detailed check of themselves when showering in the evening. Ticks prefer moist areas of the body (arm-pits, genitals, etc.) and will migrate to those locations.
- The FOL/SSO will preview the access routes and work areas in an effort to identify physical hazards including nesting areas in and around the work sites. These areas will be flagged and communicated to the site personnel.
- The FOL/SSO must determine if site personnel (through their Medical Data Sheets), suffer allergic reactions to bee and other insect stings and bites. When personnel are on-site who are predisposed to these conditions, the FOL/SSO will take the appropriate measures to secure physician directed antidotes.

It is important that any allergies be reported on the Medical Data Sheets and to the SSO.

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

Ticks and mosquitoes have been identified in the transmission of diseases including Lyme's disease and malaria. Warm months (Spring through early Fall) are the most predominant time for this hazard. However, due to the climate and environmental setting of NSA Crane, this hazard may occur year round. Information concerning transmitted Lyme's Disease including recognition, evaluation, tick removal, and control is provided in Section 4.0 of the HSGM.

Malaria may occur when a mosquito or other infected insect sucks blood from an infected person, and the insect becomes the carrier to infect other hosts. The parasite reproduces within the mosquito, and is then passed on to another person through the biting action. Acute symptoms include chills accompanied by fever and general flu like symptoms. This generally terminates in a sweating stage. These symptoms may recur every 48 to 72 hours.

Conditions such as this should not be taken for granted and should be reported to the SSO immediately.

#### **6.3.2 Snakes and Other Wild Animal Encounters**

Indigenous animals including snakes (poisonous and non-poisonous varieties), raccoons, and other animals native to the region may have to be contended with. These animals may be encountered if work locations encroach on nesting or territories claimed by these animals.

To avoid the obvious hazards conveyed as part of a direct encounter, the following actions will be taken to minimize impact on the field crews and/or operations.

- FOL/SSO will preview access routes and work locations for nesting areas or signs of animal activities (tracks, foraging areas, etc.). The identified suspect areas will be communicated to the field crews. To the extent possible, suspected nesting/habitat areas are to be avoided. Otherwise, snake chaps will be required as a precaution.

### 6.3.3 Poisonous Plants

Various plants that can cause allergic reactions may be encountered during fieldwork. These include, but may not be limited to, poison ivy, poison oak, and poison sumac. Contact of field personnel with previous plants may occur when clearing vegetation for access to work areas, or through movement through these plants. An irritating, allergic reaction can occur when direct contact is achieved between the plant and the bare skin of a field person, or the plant and some piece of equipment or clothing article that then later comes in contact with the bare skin of a field person. Oils are transferred from the plant to exposed skin, clothing, or piece of equipment. The degree of the irritating, allergic reaction can vary significantly from one person to the next.

Protective measures to control and minimize the effects of this hazard may include, but not limited to, the following:

- Identify plants for field personnel.
  - Poison Ivy - Characterized by climbing vines, three leaf configuration ovate to elliptical in shape, deep green leaves with a reddish tint, greenish flowers, and white berries.
  - Poison Sumac - Characterized as a tall bush of the sumac family bearing compound leaves (7 to 13 entire leaflets), branched from a central axis, drooping, with auxiliary clusters of white fruit.

**NOTE:** These white fruits and berries may exist only during pubescent stages.

- Poison oak - Characterized as similar to poison ivy consisting of a shrub, stems erect, 0.3 to 2.0 meters (1 to 13 feet) tall, leaflets consist of broad thick lobes coarsely serrated configuration, denser at the base, less so than the top.
- Protective measures may include wearing disposable garments such as Tyvek when clearing brush. These may be carefully removed and disposed along with any oils accumulated from the plants.

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

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

## 7.0 AIR MONITORING

Although it is unlikely, as a precautionary measure to assure that exposures to VOCs are avoided and documented, continuous monitoring will be conducted during the intrusive site activities using a flame ionization detector (FID).

### 7.1 INSTRUMENTS AND USE

Instruments will be used primarily to monitor source points and worker breathing zones areas, while observing instrument action levels. The SSO shall obtain and document the daily background (BG) reading at an upwind, unaffected area and observe for readings above that BG level. The SSO shall monitor source areas (e.g., bore holes, environmental samples) for the presence of any reading above the daily-established BG level. If elevated readings are observed, the SSO shall monitor the workers breathing zone (BZ) areas with the FID. If the appropriate instrument Action Level is exceeded (see below), the following process will be followed:

- The SSO shall stop work and move site personnel upwind to a safe, unaffected area, where they will remain until further directed by the SSO.
- The SSO shall allow at least 5 minutes to pass so that the work area can ventilate, and will then re-approach the work area while continuously monitoring the BZ areas.
- Only when BG levels are regained in BZ areas will work be permitted to resume.
- If BG levels are not regained, the SSO will contact the HSM for additional direction.

#### 7.1.1 Instrument Action Level

The action level for this site during intrusive activities is 10 ppm above BG in BZ areas for no more than 4 exposures of 5 minutes in one work day.

### 7.2 INSTRUMENT MAINTENANCE AND CALIBRATION

Operational checks and field calibration will be performed on the instruments each day prior to their use. Field calibration will be performed on instruments according to manufacturer's recommendations. 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. The calibration efforts must be documented. Figure 7-1 is provided for

documenting these calibration efforts. This information may instead be recorded in a field operations logbook, provided that the information specified in Figure 7-1 is recorded. This required information includes the following:

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

### 7.3 DOCUMENTING INSTRUMENT READINGS

The SSO is responsible for ensuring that air monitoring instruments are used in accordance with the specifications of this HASP and with manufacturer's specifications/recommendations. In addition, the SSO is also responsible for ensuring that the instrument use is documented. This requirement can be satisfied either by recording instrument readings on pre-printed sampling log sheets or in a field log book. **This includes the requirement for documenting instrument readings that indicate no elevated readings above noted daily background levels (i.e., no-exposure readings).** At a minimum, the SSO must document the following information for each use of an air monitoring device:

- Date, time, and duration of the reading
- Site location where the reading was obtained
- Instrument used
- Personnel present at the area where the reading was noted
- Other conditions that are considered relevant to the SSO (such as weather conditions, possible instrument interferences, etc.)



## **8.0 TRAINING/MEDICAL SURVEILLANCE REQUIREMENTS**

### **8.1 INTRODUCTORY/REFRESHER/SUPERVISORY TRAINING**

This section is included to specify health and safety training and medical surveillance requirements for Tetra Tech personnel participating in on site activities. Tetra Tech personnel must complete 40 hours of introductory hazardous waste site training prior to performing work at NSA Crane. Tetra Tech personnel who have had introductory training more than 12 months prior to site work must have completed 8 hours of refresher training within the past 12 months before being cleared for site work. In addition, 8-hour supervisory training in accordance with 29 C.F.R. 1910.120(e)(4) will be required for site supervisory personnel.

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

### **8.2 SITE-SPECIFIC TRAINING**

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

The Tetra Tech SSO will also conduct a pre-activities training session prior to initiating site work. This will consist of a brief meeting at the beginning of each day to discuss operations planned for that day, and a review of the appropriate Safe Work Permits with the planned task participants. A short meeting may also be held at the end of the day to discuss the operations completed and any problems encountered.

### **8.3 MEDICAL SURVEILLANCE**

Tetra Tech personnel participating in project field activities will have had a physical examination meeting the requirements of Tetra Tech's medical surveillance program. Documentation for medical clearances will be maintained in the Tetra Tech Pittsburgh office and made available, as necessary, and will be documented using Figure 8-1 for every employee participating in onsite work activities at this site.



## 9.0 SITE CONTROL

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

### 9.1 EXCLUSION ZONE

The exclusion zone will be considered the areas of the site of known or suspected contamination. It is anticipated that the areas around intrusive activities 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 and the area is restored, 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 will be limited to those areas of the site where active work is being performed plus a designated area of at least 25 feet surrounding the work area. Exclusion zones will be marked as deemed appropriate by the FOL by erecting visibility fencing, barrier tape, cones, and/or postings to inform and direct personnel.

A pre-startup site visit will be conducted to identify proposed subsurface investigation locations, conduct utility clearances, and provide notices concerning scheduled activities.

Subsurface activities will proceed only when utility clearance has been obtained. In the event that a utility is struck during a subsurface investigative activity, the emergency numbers provided in Section 2.0, Table 2-1, will be notified.

### 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 will also serve as a focal point in supporting exclusion zone activities. This area will be marked using barrier tape, cones, and postings to inform and direct facility personnel. Decontamination will be conducted at a central location. Equipment potentially contaminated will be bagged and taken to that location for decontamination.

### 9.3 SUPPORT ZONE

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

### 9.4 SAFE WORK PERMITS

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 provided in Figure 9-1. Partially completed SWPs for the work to be performed are included as Attachment IV of this HASP. These permits were completed to the extent possible as part of the development of this HASP. It is the SSO's responsibility to finalize and complete the blank portions of the SWPs based on current, existing conditions the day the task is to be performed, and then review that completed permit with the task participants as part of a pre-task tail gate briefing session. This will ensure that site-specific considerations and changing conditions are appropriately incorporated into the SWP, provide the SSO with a structured format for conducting the tail gate sessions, as well will also give personnel an opportunity to ask questions and make suggestions. The SWPs require the signature of the FOL or SSO.

### 9.5 SITE VISITORS

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

- Personnel invited to observe or participate in operations by Tetra Tech
- Regulatory personnel (i.e., DoD, EPA, OSHA)
- Authorized Navy Personnel
- Other authorized visitors

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

Site visitors will be escorted and restricted from approaching any work areas where they could potentially be exposed to hazardous chemicals. 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.

#### **9.6 SITE SECURITY**

Site security will be accomplished using Tetra Tech field personnel. Tetra Tech will retain complete control over active operational areas. As this activity takes place at a Navy facility open to public access, the first line of security will take place using exclusive zone barriers, site work permits, and any existing barriers at the sites to restrict the general public. The second line of security will take place at the work site referring interested parties to the Base Contact. The Base Contact will serve as a focal point for base personnel, interested parties, and serve as the final line of security and the primary enforcement contact.

#### **9.7 BUDDY SYSTEM**

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

#### **9.8 MATERIAL SAFETY DATA SHEET (MSDS) REQUIREMENTS**

Tetra Tech and subcontractor personnel will provide MSDSs for chemicals brought on site. The contents of these documents will be reviewed by the SSO with the user(s) of the chemical substances prior to any actual use or application of the substances on site. A chemical inventory of the chemicals used on site will be developed using the HSGM. The MSDSs will then be maintained in a central location (i.e., temporary office) and will be available for anyone to review upon request.

#### **9.9 COMMUNICATION**

As personnel will be working in proximity to one another during field activities, a supported means of communication between field crew members will not be necessary.

External communication will be accomplished by using the telephones at predetermined and approved locations. External communication will primarily be used for the purpose of resource and emergency resource communications. Prior to the commencement of activities at the NSA Crane, the FOL will determine and arrange for telephone communications.

**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:** Potential hazards associated with this task:  
 \_\_\_\_\_  
 \_\_\_\_\_

**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
Safety 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 quantities of bulk potentially hazardous materials (greater than 55-gallons) will be handled during some of the site activities conducted as part of the scope of work (including IDW). It is also not anticipated that spillage of these materials would constitute a significant danger to human health or the environment. Further, it is possible that as the job progresses disposable PPE and other non-reusable items will be generated. As needed, 55-gallon drums will be used to contain waste waters, IDW, and other unwanted items generated during investigatory activities.

It is not anticipated that significant volumes of solid or semi-solid IDW (i.e., soil, sediment, etc.) will be generated during field activities, including installation of temporary groundwater monitoring wells or collection of subsurface samples using DPT.

If gross contamination is encountered (e.g., any non-soil contaminated material such as free product or soil with FID readings greater than 100 parts per million [ppm]), then intrusive activities will cease. Any grossly contaminated material that is brought to the surface will not be returned to the excavation but will be segregated from other excavated soil and placed on a plastic liner. The grossly contaminated material will be securely staged until arrangements are made for proper off-site disposal.

If IDW is generated, the material will be handled in accordance with SOP-10 (Management of Investigation-Derived Waste) located in Appendix A of the Sampling and Analysis (SAP). Used personal protective equipment (PPE) and other IDW such as DPT plastic sleeves will be bagged for disposal as regular trash in an appropriate facility waste container.

### 10.2 POTENTIAL SPILL AREAS

Potential spill areas will be monitored in an ongoing attempt to prevent and control further potential contamination of the environment. Currently, there are various areas vulnerable to this hazard including the areas used for central tagging and decontamination activities. Additionally, areas designated for handling, loading, and unloading of potentially contaminated soils, waters, and debris present limited potential for leaks or spills. It is anticipated that the IDW generated as a result of this scope of work will be disposed on-site.

### **10.3 PERSONNEL TRAINING AND SPILL PREVENTION**

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

### **10.4 SPILL PREVENTION AND CONTAINMENT EQUIPMENT**

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

- Sand, clean fill, vermiculite, or other noncombustible absorbent (oil-dry);
- Drums (55-gallon U.S. Department of Transportation DOT 1A1 or 1A2)
- Shovels, rakes, and brooms
- Labels

### **10.5 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 the absorbent material. Label the new container appropriately. Await analyses for treatment and disposal options.
- Re-containerize spills, including 2-inch of top cover impacted by the spill. Await test results for treatment or disposal options.

It is not anticipated that a spill will occur that the field crew cannot handle. Should a spill event occur that is beyond the capabilities of the field crew, spills will be reported to the Crane Environmental Office. Any necessary notifications or requests to outside agencies will be handled by Crane.

## 11.0 CONFINED-SPACE ENTRY

It is not anticipated, under the proposed scope of work, that confined space and permit-required confined space activities will be conducted. **Therefore, personnel under the provisions of this HASP are not allowed, under any circumstances, to enter confined spaces.** A confined space is defined as an area which has one or more of the following characteristics:

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

Additionally, a Permit-Required Confined Space must also have one or more of the following characteristics:

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

For further information on confined space, consult the 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 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 (Attachment V)
- Training/Medical Surveillance Documentation Form
- First-Aid Supply Usage Form
- Emergency Reference Form
- Directions to the Hospital

### 12.1 MATERIALS TO BE POSTED AT THE SITE

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

- **Chemical Inventory Listing (posted)** - This list represents the chemicals brought on-site, including decontamination solutions, sample preservations, fuel, etc. This list should be posted in a central area.
- **MSDSs (maintained)** - The MSDSs should also be in a central area accessible to the site personnel. These documents should match the listings on the chemical inventory list for the substances employed on-site. It is acceptable to have these documents within a central folder and the chemical inventory as the table of contents.
- **The OSHA Job Safety & Health Protection Poster (posted)** - This poster should be conspicuously posted in places where notices to employees are normally posted, as directed by 29 CFR 1903.2 (a)(1). Each FOL shall ensure that this poster is not defaced, altered, or covered by other material. The law also states that reproductions or facsimiles of the poster shall be at least 8½ by 14 inches with 10 point type.

- **Site Clearance (maintained)** - This list is found within the training section of the HASP (Figure 8-1). This list identifies the site personnel, dates of training (including site-specific training), and medical surveillance. The list indicates not only clearance, but also status. If personnel do not meet these requirements, they do not enter the site while site personnel are engaged in activities.
- **Emergency Phone Numbers and Directions to the Hospital(s) (posted)** - This list of numbers and directions will be maintained at the phone communications points and in each site vehicle.
- **Medical Data Sheets/Cards (maintained)** - Medical Data Sheets will be filled out by on-site personnel and filed in a central location. The Medical Data Sheet will accompany any injury or illness requiring medical attention to the medical facility.
- **Personnel Monitoring (maintained)** - The results generated through personnel sampling (levels of airborne toxins, noise levels, etc.) will be posted to inform individuals of the results of that effort.
- **Placards and Labels (maintained)** - Where chemical inventories have been separated because of quantities and incompatibilities, these areas will be conspicuously marked using DOT placards and acceptable [Hazard Communication 29 CFR 1910.1200(f)] labels.

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

### 13.0 ACRONYMS / ABBREVIATIONS

ACGIH	American Conference of Governmental and Industrial Hygienists
BG	Background
BZ	Breathing Zone
CAAA	Crane Army Ammunition Activity
CFR	Code of Federal Regulations
CIH	Certified Industrial Hygienist
CLEAN	Comprehensive Long-Term Environmental Action Navy
COC	Chemicals of Concern
CPR	Cardio Pulmonary Resuscitation
CSP	Certified Safety Professional
CTO	Contract Task Order
dBA	decibels
DoD	Department of Defense
DOT	Department of Transportation
DRI	Direct Reading Instrument
FOL	Field Operations Leader
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
HSM	Health and Safety Manager
IDW	Investigation Derived Waste
mg/m <sup>3</sup>	milligrams per cubic meter
N/A	Not Available
NSA	Naval Support Activity
NIOSH	National Institute for Occupational Safety and Health
OELs	Occupational Exposure Limits
OSHA	Occupational Safety and Health Administration (U.S. Department of Labor)
PCBs	Polycarbonated biphenyls
PEL	Personal Exposure Limit
PHSO	Project Health and Safety Officer
PPE	Personal Protective Equipment
RPM	Remedial Project Manager
SOP	Standard Operating Procedure
SSO	Site Safety Officer
STEL	Short term exposure limit
SWP	Safe Work Permits

TBD	To be determined
TLV	Threshold Limit Values
TOM	Task Order Manager
TWA	Time Weighted Average
SWMU	Solid Waste Management Unit
Tetra Tech	Tetra Tech NUS, Inc.

**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 \_\_\_\_\_

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: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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

HIPAA took effect 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.

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Name (Print clearly)

Signature

Date

**ATTACHMENT II**  
**INCIDENT REPORT FORM**



TETRA TECH, INC.

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TETRA TECH, INC. INCIDENT REPORT

Report Date	Report Prepared By	Incident Report Number
<b>INSTRUCTIONS:</b>		
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.		
<b>TYPE OF INCIDENT (Check all that apply)</b>		<b>Additional Form(s) Required for this type of incident</b>
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
<b>INFORMATION ABOUT THE INCIDENT</b>		
<b>Description of Incident</b>		
<b>Date of Incident</b>		<b>Time of Incident</b>
		_____ AM <input type="checkbox"/> PM <input type="checkbox"/> OR Cannot be determined <input type="checkbox"/>
<b>Weather conditions at the time of the incident</b>		<b>Was there adequate lighting?</b>
		_____ Yes <input type="checkbox"/> No <input type="checkbox"/>
<b>Location of Incident</b>		
_____ Was location of incident within the employer's work environment? Yes <input type="checkbox"/> No <input type="checkbox"/>		
<b>Street Address</b>		<b>City, State, Zip Code and Country</b>
<b>Project Name</b>		<b>Client:</b>
<b>Tetra Tech Supervisor or Project Manager</b>		<b>Was supervisor on the scene?</b>
		Yes <input type="checkbox"/> No <input type="checkbox"/>
<b>WITNESS INFORMATION (attach additional sheets if necessary)</b>		
<b>Name</b>		<b>Company</b>
<b>Street Address</b>		<b>City, State and Zip Code</b>
<b>Telephone Number(s)</b>		



TETRA TECH, INC.

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TETRA TECH, INC.
INCIDENT REPORT

CORRECTIVE ACTIONS

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

Blank lines for reporting immediate corrective actions.

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

Blank lines for reporting future corrective actions.

ROOT CAUSE ANALYSIS LEVEL REQUIRED

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

Root Cause Analysis Level Definitions

Table with 2 columns: Level and Definition. Level - 1 definition includes work related fatality, hospitalization, property damage, and senior management request. Level - 2 definition includes OSHA recordable lost time incident, near miss, and senior management request.

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 Tetra Tech personnel)?

Full Name

Company (if not Tetra Tech employee)

Street Address, City, State and Zip Code

Address Type

Home address (for Tetra Tech 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 Tetra Tech 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"

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**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"

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**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".

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### MEDICAL CARE PROVIDED

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

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

<b>Name of physician or health care professional</b>	<b>Facility Name</b>
<b>Street Address, City State and Zip Code</b>	<b>Type of Care?</b>
<hr/> <hr/>	Was individual treated in emergency room? Yes <input type="checkbox"/> No <input type="checkbox"/>
<hr/>	Was individual hospitalized overnight as an in-patient? Yes <input type="checkbox"/> No <input type="checkbox"/>
<b>Telephone Number</b>	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

<b>Affected individual (print)</b>	<b>Affected individual (signature)</b>	<b>Telephone Number</b>	<b>Date</b>

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

**INSTRUCTIONS:**

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

Incident Report Number: (From the IR Form)

**TYPE OF INCIDENT (Check all that apply)**

Property Damage       Equipment Damage       Fire or Explosion       Spill or Release

**INCIDENT DETAILS**

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

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

Response Actions Taken:

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

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

Agency(s) Contact Name(s)

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

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

Item:	Extent of damage:	Estimated repair cost

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

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

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

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

**NOTIFICATIONS**

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

Who is responsible for reporting incident to outside agency(s)? Tetra Tech  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  No

Yes  No

Name and location of responding police department	Ambulance company name and location
---	-------------------------------------

--	--

Officer's name/badge #	
------------------------	--

Did police complete an incident report? Yes  No  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-Tetra Tech employees) is captured in the section below on this form.  
 Injured Tetra Tech 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

A large, empty rectangular box with a thin black border, intended for drawing a diagram. The box occupies most of the page below the header.

**ATTACHMENT III**  
**EQUIPMENT**  
**INSPECTION CHECKLISTS**

**DRILL RIG  
EQUIPMENT INSPECTION CHECKLIST**

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

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

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

Equipment Type: \_\_\_\_\_  
(e.g., Drill Rigs Hollow Stem, Mud Rotary, Direct Push, HDD)

Project Name: \_\_\_\_\_

Project No#: \_\_\_\_\_

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

**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"/>	<b>Fluid Levels:</b> <ul style="list-style-type: none"> <li>• Engine oil</li> <li>• Transmission fluid</li> <li>• Brake fluid</li> <li>• Cooling system fluid</li> <li>• Hoses and belts</li> <li>• Hydraulic oil</li> </ul>	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<b>High Pressure Hydraulic Lines</b> <ul style="list-style-type: none"> <li>• Obvious damage</li> <li>• Operator protected from accidental release</li> <li>• Coupling devices, connectors, retention cables/pins are in good condition and in place</li> </ul>	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<b>Mast Condition</b> <ul style="list-style-type: none"> <li>• Structural components/tubing</li> <li>• Connection points</li> <li>• Pins</li> <li>• Welds</li> <li>• Outriggers</li> <li>• Operational</li> <li>• Plumb (when raised)</li> </ul>	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<b>Hooks</b> <ul style="list-style-type: none"> <li>• Are the hooks equipped with Safety Latches?</li> <li>• Does it appear that the hook is showing signs of wear in excess of 10% original dimension?</li> <li>• Is there a bend or twist exceeding 10% from the plane of an unbent hook?</li> <li>• Increase in throat opening exceeding 15% from new condition</li> <li>• Excessive nicks and/or gouges</li> <li>• Clips</li> <li>• Number of U-Type (Crosby) Clips                      (cable size 5/16 - 5/8 = 3 clips minimum)                      (cable size 3/4 - 1 inch = 4 clips minimum)                      (cable size 1 1/8 - 1 3/8 inch = 5 clips minimum)</li> </ul>	

**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"> <li>• Reduction in Rope diameter <math>\pi</math>                          (5/16 wire rope &gt; 1/64 reduction nominal size -replace)                          (3/8 to 1/2 wire rope &gt; 1/32 reduction nominal size-replace)                          (9/16 to 3/4 wire rope &gt; 3/64 reduction nominal size-replace)</li> </ul>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>• Number of broken wires                          (6 randomly broken wires in one rope lay)                          (3 broken wires in one strand)</li> </ul>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>• Number of wire rope wraps left on the Running Drum at nominal use (<math>\geq 3</math> required)</li> </ul>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>- Lead (primary) sheave is centered on the running drum</li> </ul>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>• Lubrication of wire rope (adequate?)</li> </ul>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>• Kinks, bends - Flattened to &gt; 50% diameter</li> </ul>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hemp/Fiber rope (Cathead/Split Spoon Hammer) <ul style="list-style-type: none"> <li>• Minimum <math>\frac{3}{4}</math>; maximum 1 inch rope diameter (Inspect for physical damage)</li> </ul>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>• Rope to hammer is securely fastened</li> </ul>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Safety Guards - <ul style="list-style-type: none"> <li>• Around rotating apparatus (belts, pulleys, sprockets, spindles, drums, flywheels, chains) all points of operations protected from accidental contact?</li> </ul>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>• Hot pipes and surfaces exposed to accidental contact?</li> </ul>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>• High pressure lines</li> </ul>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>• Nip/pinch points</li> </ul>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Operator Qualifications <ul style="list-style-type: none"> <li>• Does the operator have proper licensing where applicable, (e.g., CDL)?</li> </ul>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>• Does the operator, understand the equipment's operating instructions?</li> </ul>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>• Is the operator experienced with this equipment?</li> </ul>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>• Is the operator 21 years of age or more?</li> </ul>	

**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"/>	<b>PPE Required for Drill Rig Exclusion Zone</b> <ul style="list-style-type: none"> <li>• Hardhat</li> <li>• Safety glasses</li> <li>• Work gloves</li> <li>• Chemical resistant gloves _____</li> <li>• Safety toed Work Boots</li> <li>• Chemical resistant Boot Covers</li> <li>• Apron</li> <li>• Coveralls Tyvek, Saranex, cotton) _____</li> </ul>	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<b>Other Hazards</b> <ul style="list-style-type: none"> <li>• Excessive Noise Levels? _____ dBA</li> <li>• Chemical hazards (Drilling supplies - Sand, bentonite, grout, fuel, etc.)</li> <li>- MSDSs available?</li> <li>• Will On-site fueling occur</li> <li>- Safety cans available?</li> <li>- Fire extinguisher (Type/Rating - _____ )</li> </ul>	

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"/>	<b>Seat Belts</b> <ul style="list-style-type: none"> <li>• Are available for intended operator and passengers (where applicable)</li> <li>• Seat Belts are operational?</li> </ul>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<b>Roll-Over Protection (ROPS)</b> <ul style="list-style-type: none"> <li>• Roll-over protection structures (ROPS) are provided on vehicles and heavy equipment (including scrapers, tractors, loaders, bulldozers, carryalls, etc.)</li> </ul>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<b>Brakes</b> <ul style="list-style-type: none"> <li>• Brake systems capable of stopping and holding fully loaded equipment</li> <li>• Parking Brake functions properly</li> <li>• Wheel Chocks available (where and as applicable)</li> </ul>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<b>Access</b> <ul style="list-style-type: none"> <li>• Non-slip steps</li> <li>• Grab Handles (3-Point Grab/Step Mounting Points)</li> </ul>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<b>Audible Alarms</b> <ul style="list-style-type: none"> <li>• Audible alarms – All bidirectional machines, such as rollers, compacters, front-end loaders, bulldozers, and similar equipment, shall be equipped with a horn, distinguishable from the surrounding noise level, which shall be operated as needed when the machine is moving in either direction.</li> <li>- Back up Alarms – All self propelled equipment with an obstructed view to the rear will be equipped with a reverse gear signal alarm distinguishable from the surrounding noise level.</li> <li>• Horn functioning properly</li> </ul>	

**Equipment Inspection Checklist for Heavy Equipment**

Page 2

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"/> <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"/>	<p><b>Highway Use</b></p> <ul style="list-style-type: none"> <li>• Fenders for equipment that can exceed 15mph</li> <li>• Fire Extinguisher</li> <li>• Are exhaust emissions directed away from the Operator?</li> <li>• Cab                             <ul style="list-style-type: none"> <li>- Clean, free from debris, tools or equipment that can interfere with foot Control.</li> <li>- Free from storage of flammable material/solvents</li> </ul> </li> <li>• Mirrors,</li> <li>• Safety glass                             <ul style="list-style-type: none"> <li>- Equipped with defrosters</li> <li>- Windshield wipers</li> </ul> </li> <li>• Turn signals, lights, brake lights, etc. (front/rear) for equipment approved for highway use?</li> <li>• Gauges functioning properly</li> <li>• Tires (Tread) or tracks</li> <li>• Steering (standard and emergency)</li> <li>• Are tools and material secured to prevent movement during transport?</li> </ul>	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<p><b>Fluid Levels:</b></p> <ul style="list-style-type: none"> <li>• Engine oil</li> <li>• Transmission fluid</li> <li>• Brake fluid</li> <li>• Cooling system fluid</li> <li>• Hoses and belts</li> <li>• Hydraulic oil</li> </ul>	

**Equipment Inspection Checklist for Heavy Equipment**  
**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"/>	<b>Fueling</b> <ul style="list-style-type: none"> <li>• Fueling of vehicles and heavy equipment is done with the engine off.</li> <li>• No smoking is permitted at or near the fuel storage or refueling area. A sign is posted stating: NO SMOKING WITHIN 50 FEET.</li> <li>• No sources of ignition are present near the fuel storage or refueling area.</li> <li>• 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.</li> <li>• Safety cans available?</li> </ul>	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<b>Safety Guards -</b> <ul style="list-style-type: none"> <li>• Around rotating apparatus (belts, pulleys, sprockets, spindles, drums, flywheels, chains) all points of operations protected from accidental contact?</li> <li>• Hot pipes and surfaces are protected from accidental contact?</li> <li>• High pressure pneumatic lines have safety cable to prevent thrashing should it become disconnected?</li> </ul>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<b>Attachments</b> <ul style="list-style-type: none"> <li>• Have the attachments designed for use (as per manufacturer's recommendation) with this equipment been inspected and are considered suitable for use?</li> </ul>	
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<b>Operator Qualifications</b> <ul style="list-style-type: none"> <li>• Does the operator have proper licensing where applicable, (e.g., CDL)?</li> <li>• Does the operator, understand the equipment's operating instructions?</li> <li>• Is the operator experienced with this equipment?</li> <li>• Is the operator 21 years of age or more?</li> </ul>	

**Equipment Inspection Checklist for Heavy Equipment**

Page 4

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

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

Yes	No	NA	Requirements	Comments
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PPE Required <ul style="list-style-type: none"> <li>• Hardhat</li> <li>• Safety glasses</li> <li>• Work gloves</li> <li>• Chemical resistant gloves _____</li> <li>• Steel toed Work Boots</li> <li>• Chemical resistant Boot Covers</li> <li>• Apron</li> <li>• Coveralls Tyvek, Saranex, cotton) _____</li> </ul>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Key(s)? Operating Manual?	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other Hazards <ul style="list-style-type: none"> <li>• Excessive Noise Levels _____ dBA</li> <li>• Chemical hazards (Drilling supplies - Sand, bentonite, grout, fuel, etc.)</li> <li>- MSDSs available?</li> </ul>	

Approved for Use     Yes     No     See Comments

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

\_\_\_\_\_  
Operator

**ATTACHMENT IV**  
**SAFE WORK PERMITS**

**SAFE WORK PERMIT  
MOBILIZATION AND DEMOBILIZATION ACTIVITIES  
NSA CRANE – SWMU 21**

Permit No. \_\_\_\_\_ Date: \_\_\_\_\_ Time: From \_\_\_\_\_ to \_\_\_\_\_

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

II. **Primary Hazards:** Lifting; slips, trips and falls; vehicular and foot traffic; insect/animal bites and stings; poisonous plants; 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

V. **Protective equipment required**

Level D  Level B   
 Level C  Level A

**Respiratory equipment required**

Yes  Specify on the reverse  
 No

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

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

Primary Route(s) of Exposure/Hazard: NA

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

VII. **Additional Safety Equipment/Procedures**

Hard-hat.....  Yes  No  
 Safety Glasses .....  Yes  No  
 Chemical/splash goggles.....  Yes  No  
 Splash Shield.....  Yes  No  
 Splash suits/coveralls .....  Yes  No  
 Impermeable apron.....  Yes  No  
 Safety toe work shoes/boots.....  Yes  No  
 High visibility vest.....  Yes  No  
 First Aid Kit.....  Yes  No  
 Safety Shower/Eyewash .....  Yes  No

Hearing Protection (Plugs/Muffs).....  Yes  No  
 Safety belt/harness .....  Yes  No  
 Radio/Cellular Phone.....  Yes  No  
 Barricades.....  Yes  No  
 Gloves (Type – Work).....  Yes  No  
 Work/rest regimen .....  Yes  No  
 Chemical Resistant Boot Covers .....  Yes  No  
 Tape up/use insect repellent .....  Yes  No  
 Fire Extinguisher.....  Yes  No  
 Other.....  Yes  No

Modifications/Exceptions: Tyvek coverall to protect against natural hazards (e.g., ticks) if working/walking through areas of high grass. Use insect repellants containing at least 10% DEET and tape up in such areas. Follow manufacturer's recommendations for proper application and reapplication. Hard hat when overhead hazards exist. Safety glasses when near eye hazards. Hearing protection when in high noise 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 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:** Preview work locations to identify potential hazards (slips, trips, and falls, natural hazards, etc.) Review PPE needs based on activities being performed and the associated hazards. Use safe lifting procedures and obtain assistance when handling heavy or awkward objects. Suspend site activities in the event of inclement weather. Observe site workers for signs and symptoms of heat stress. Use sun block (SPF > 15) to prevent sunburn if necessary.

Permit Issued by: \_\_\_\_\_ Permit Accepted by: \_\_\_\_\_

**SAFE WORK PERMIT  
MULTIMEDIA SAMPLING ACTIVITIES  
NSA CRANE – SWMU 21**

Permit No. \_\_\_\_\_ Date: \_\_\_\_\_ Time: From \_\_\_\_\_ to \_\_\_\_\_

**I. Work limited to the following (description, area, equipment used):** Multimedia sampling activities

**II. Primary Hazards:** Slips, trips and falls; heavy equipment hazards, vehicular and foot traffic; insect/animal bites and stings; poisonous plants; inclement weather, chemical contamination.

**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**

Level D  Level B   
 Level C  Level A

**Respiratory equipment required**

Yes  Specify on the reverse  
 No

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

**VI. Chemicals of Concern**

VOCs/PCBs  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Hazard Monitoring /Action Level**

FID above 10ppm in BZ for 4 exps of 5 mins  
 \_\_\_\_\_  
 \_\_\_\_\_

**Response Measures**

Suspend site activities and retreat to unaffected area. If readings are sustained contact SSO.  
 \_\_\_\_\_

Metals (dust)

visible dust

Area wetting techniques

**Primary Route(s) of Exposure/Hazard:** inhalation, dermal, ingestion

(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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Safety belt/harness/lifeline.....	<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 checked="" type="checkbox"/> No
Splash Shield.....	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Barricades.....	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Splash suits/coveralls .....	<input type="checkbox"/> Yes <input type="checkbox"/> No	Gloves (Type – nitrile).....	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Impermeable apron.....	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Work/rest regimen .....	<input type="checkbox"/> Yes <input type="checkbox"/> No
Safety toe work shoes/boots.....	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Chemical Resistant Boot Covers ....	<input type="checkbox"/> Yes <input type="checkbox"/> No
High visibility vest.....	<input type="checkbox"/> Yes <input type="checkbox"/> No	Tape up/use insect repellent .....	<input type="checkbox"/> Yes <input type="checkbox"/> No
First Aid Kit.....	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Fire Extinguisher.....	<input type="checkbox"/> Yes <input type="checkbox"/> No
Safety Shower/Eyewash.....	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Other.....	<input type="checkbox"/> Yes <input type="checkbox"/> No

Modifications/Exceptions: Wear a hard-hat when in areas with overhead hazards. Wear hearing protection near high ambient noise areas. Tyvek coverall to protect against natural hazards (e.g. ticks) if working/walking through areas of high grass. Use insect repellants containing at least 10% DEET and tape up in such areas. Follow manufacturer's recommendations for proper application and reapplication. Wear high visibility clothing when working near traffic. If working in hot or cold extremes follow the work/rest regimen found in the HSGM. Wear boot covers in excessively muddy conditions.

**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:** Preview work locations to identify potential hazards (slips, trips, and falls, natural hazards, etc.) Review PPE needs based on activities being performed and the associated hazards. Use safe lifting procedures and obtain assistance when handling heavy or awkward objects. Suspend site activities in the event of inclement weather. Observe site workers for signs and symptoms of heat/cold stress. Use sun block (SPF > 15) to prevent sunburn if necessary.

Permit Issued by: \_\_\_\_\_ Permit Accepted by: \_\_\_\_\_

**SAFE WORK PERMIT  
TEST PIT EXCAVATIONS  
NSA CRANE – SWMU 21**

Permit No. \_\_\_\_\_ Date: \_\_\_\_\_ Time: From \_\_\_\_\_ to \_\_\_\_\_

- I. Work limited to the following (description, area, equipment used):** Test pit excavation and sampling activities
- II. Primary Hazards:** Slips, trips and falls; vehicular and foot traffic; insect bites and stings; poisonous plants; inclement weather, chemical contamination, heavy equipment hazards, utilities, noise
- 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** Level D  Level B   
 Level C  Level A   
 Modifications/Exceptions: \_\_\_\_\_
- Respiratory equipment required** Yes  Specify on the reverse  
 No

- VI. Chemicals of Concern** VOCs/PCBs **Hazard Monitoring /Action Level** FID above 10ppm in BZ for 4 exps of 5 mins **Response Measures** Suspend site activities and retreat to unaffected area. If readings are sustained contact SSO.
- \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
- Metals (dust) visible dust Area wetting techniques  
**Primary Route(s) of Exposure/Hazard:** inhalation, dermal, ingestion

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

- VII. Additional Safety Equipment/Procedures**
- |                                  |   |                                      |  |
|----------------------------------|---|--------------------------------------|--|
| Hard-hat.....                    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Hearing Protection (Plugs/Muffs).... | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No            |
| Safety Glasses .....             | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Safety belt/harness/lifeline.....    | <input checked="" 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 checked="" type="checkbox"/> No            |
| Splash Shield.....               | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | Barricades.....                      | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No            |
| Splash suits/coveralls .....     | <input type="checkbox"/> Yes <input type="checkbox"/> No            | Gloves (Type – nitrile).....         | <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            |
| Safety toe work shoes/boots..... | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Chemical Resistant Boot Covers....   | <input type="checkbox"/> Yes <input type="checkbox"/> No                       |
| High-visibility vest.....        | <input type="checkbox"/> Yes <input type="checkbox"/> No            | Tape up/use insect repellent .....   | <input type="checkbox"/> Yes <input type="checkbox"/> No                       |
| First Aid Kit.....               | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Fire Extinguisher.....               | <input 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: Minimum requirement include sleeved shirt and long pants, safety footwear, and nitrile gloves Tyvek coverall to protect against natural hazards (e.g., ticks) if working/walking through areas of high grass. Use insect repellents containing at least 10% DEET and tape up insects such areas. Follow manufacturer's recommendations for proper application and reapplication. Hearing protection in high noise areas.

- VIII. Site Preparation**
- |  |   |                             |                             |
|--|---|-----------------------------|-----------------------------|
| Utility Locating and Excavation Clearance completed.....                                   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> NA |
| Vehicle and Foot Traffic Routes Established/Traffic Control Barricades/Signs in Place .... | <input checked="" 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:** Preview work locations to identify potential hazards (slips, trips, and falls, natural hazards, etc.) Review PPE needs based on activities being performed and the associated hazards. Use safe lifting procedures and obtain assistance when handling heavy or awkward objects. Suspend site activities in the event of inclement weather. Observe site workers for signs and symptoms of heat/cold stress. Use sun block (SPF > 15) to prevent sunburn if necessary. Complete Heavy Equipment Inspection Checklist prior to beginning work (Attachment III). Utility Clearance will be performed prior to beginning work. For more information refer to the Utility Clearance SOP in the HSGM.

Permit Issued by: \_\_\_\_\_ Permit Accepted by: \_\_\_\_\_

**SAFE WORK PERMIT  
MONITORING WELL INSTALLATION AND  
SAMPLING ACTIVITIES VIA DPT  
NSA CRANE – SWMU 21**

Permit No. \_\_\_\_\_ Date: \_\_\_\_\_ Time: From \_\_\_\_\_ to \_\_\_\_\_

**I. Work limited to the following (description, area, equipment used):** Monitoring well installation and sampling activities via DPT

**II. Primary Hazards:** Slips, trips and falls; vehicular and foot traffic; insect/animal bites and stings; poisonous plants; inclement weather, chemical contamination, heavy equipment hazards, noise, utilities

**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**

Level D  Level B   
 Level C  Level A

Modifications/Exceptions: \_\_\_\_\_

**Respiratory equipment required**

Yes  Specify on the reverse  
 No

**VI. Chemicals of Concern**

PCBs  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Hazard Monitoring /Action Level**

FID above 10ppm in BZ for 4 expts of 5 mins  
 \_\_\_\_\_  
 \_\_\_\_\_

**Response Measures**

Suspend site activities and retreat to unaffected area. If readings are sustained contact SSO.  
 \_\_\_\_\_  
 \_\_\_\_\_

Metals (dust)

visible dust

Area wetting techniques

**Primary Route(s) of Exposure/Hazard:** inhalation, dermal, ingestion

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

**VII. Additional Safety Equipment/Procedures**

Hard-hat.....  Yes  No  
 Safety Glasses .....  Yes  No  
 Chemical/splash goggles.....  Yes  No  
 Splash Shield.....  Yes  No  
 Splash suits/coveralls .....  Yes  No  
 Impermeable apron.....  Yes  No  
 Safety toe work shoes/boots.....  Yes  No  
 High visibility vest.....  Yes  No  
 First Aid Kit.....  Yes  No  
 Safety Shower/Eyewash .....  Yes  No

Hearing Protection (Plugs/Muffs)....  Yes  No  
 Safety belt/harness/lifeline.....  Yes  No  
 Radio/Cellular Phone.....  Yes  No  
 Barricades.....  Yes  No  
 Gloves (Type – nitrile).....  Yes  No  
 Work/rest regimen.....  Yes  No  
 Chemical Resistant Boot Covers ....  Yes  No  
 Tape up/use insect repellent .....  Yes  No  
 Fire Extinguisher.....  Yes  No  
 Other.....  Yes  No

Modifications/Exceptions: Minimum requirement include sleeved shirt and long pants, safety footwear, and nitrile gloves Tyvek coverall to protect against natural hazards (e.g., ticks) if working/walking through areas of high grass. Use insect repellents containing at least 10% DEET and tape up in such areas. Follow manufacturer's recommendations for proper application and reapplication. Hearing protection in high noise 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 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:** Preview work locations to identify potential hazards (slips, trips, and falls, natural hazards, etc.) Review PPE needs based on activities being performed and the associated hazards. Use safe lifting procedures and obtain assistance when handling heavy or awkward objects. Suspend site activities in the event of inclement weather. Observe site workers for signs and symptoms of heat/cold stress. Use sun block (SPF > 15) to prevent sunburn if necessary. Complete DPT Equipment Inspection Checklist prior to beginning work (Attachment III). Utility Clearance will be performed prior to beginning work. For more information refer to the Utility Clearance SOP in the HSGM.

Permit Issued by: \_\_\_\_\_ Permit Accepted by: \_\_\_\_\_

**SAFE WORK PERMIT  
DECONTAMINATION ACTIVITIES  
NSA CRANE – SWMU 21**

Permit No. \_\_\_\_\_ Date: \_\_\_\_\_ Time: From \_\_\_\_\_ to \_\_\_\_\_

**I. Work limited to the following (description, area, equipment used):** Decontamination of equipment.

**II. Primary Hazards:** Chemical exposure, transfer of contamination, inclement weather, noise, slips/trips.

**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: Minimum requirement include sleeved shirt and long pants, safety glasses, safety footwear, and nitrile gloves. Impermeable aprons are preferred protection against soiling work clothes when lifting auger flights because of the need to carry close to the body. If it (impermeable apron) does not offer adequate protection, PVC rain suits or PE or PVC coated Tyvek should be employed. Chemical resistant boot covers if excessive liquids are generated or to protected footwear.

**VI. Chemicals of Concern** **Hazard Monitoring/Action Level(s)** **Response Measures**  
Decontamination Fluids refer to MSDS refer to MSDS

**Primary Route(s) of Exposure/Hazard:** Inhalation and direct contact and ingestion

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

**VII. Additional Safety Equipment/Procedures**

Hard-hat..... <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Hearing Protection (Plugs/Muffs)..... <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Safety Glasses ..... <input 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 checked="" type="checkbox"/> No
Splash shield..... <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Barricades..... <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Splash suits/coveralls ..... <input type="checkbox"/> Yes <input type="checkbox"/> No	Gloves (Type – Nitrile) ..... <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Impermeable apron..... <input type="checkbox"/> Yes <input type="checkbox"/> No	Work/rest regimen ..... <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Safety 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 checked="" type="checkbox"/> No	Tape up/use insect repellent ..... <input type="checkbox"/> Yes <input checked="" 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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Other..... <input type="checkbox"/> Yes <input type="checkbox"/> No

Modifications/Exceptions: Chemical resistant boot covers if excessive liquids are generated or to protect footwear. Impermeable apron may be worn to protect from overspray

**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. Employ proper lifting techniques. When/where possible use heavy equipment to move and place containers.

Permit Issued by: \_\_\_\_\_ Permit Accepted by: \_\_\_\_\_

**SAFE WORK PERMIT  
IDW MANAGEMENT  
NSA CRANE – SWMU 21**

Permit No. \_\_\_\_\_ Date: \_\_\_\_\_ Time: From \_\_\_\_\_ to \_\_\_\_\_

**SECTION I: General Job Scope**

- I. **Work limited to the following (description, area, equipment used):** IDW management activities includes containerization, staging, monitoring for leaks of IDW accumulated wastes. Wastes types include purge and decontamination wash waters.
- II. **Primary Hazards:** Lifting, pinches and c ompressions; flying projectiles; slips, trips, and f alls and c hemical contamination.
- 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**  
None anticipated      none      none

**Primary Route of Exposure/Hazard:** NA

**(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 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 |
| Safety toe work shoes/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 checked="" type="checkbox"/> No | Other.....                            | <input type="checkbox"/> Yes <input type="checkbox"/> No            |

**Modifications/Exceptions:** When 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. Tyvek coverall to protect against natural hazards (e.g., ticks) if working/walking through areas of high grass. Use insect repellants containing at least 10% DEET if necessary. Follow manufacturer's recommendations for proper application and reapplication. If working in areas where snakes are a threat, wear snake chaps to protect against bites. High visibility vest if near active traffic areas.

- VIII. **Site Preparation**
- |   |                          |                          |                                     |
|---|--------------------------|--------------------------|-------------------------------------|
| Utility Locating and Excavation Clearance completed .....                                   | Yes                      | No                       | NA                                  |
| Vehicle and Foot Traffic Routes Established/Traffic Control Barricades/Signs in Place ..... | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" 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. When/where possible use heavy equipment to move and place containers. When placing drums – Place the label and retention ring nut on the outside where it is readily visible. Place 4-drums to a pallet. Maintain a minimum distance of 4-feet between pallet rows. An IDW inventory shall be generated to provide the number of drums, contents, and volumes. This inventory should be provided to the facility contact. Inspect equipment prior to use.

Permit Issued by: \_\_\_\_\_ Permit Accepted by: \_\_\_\_\_

**SAFE WORK PERMIT  
GPS SURVEYING  
NSA CRANE – SWMU 21**

Permit No. \_\_\_\_\_ Date: \_\_\_\_\_ Time: From \_\_\_\_\_ to \_\_\_\_\_

**SECTION I: General Job Scope**

- I. Work limited to the following (description, area, equipment used): GPS surveying
- II. Primary Hazards: slips, trips, and falls, noise, inclement weather, vehicular traffic
- 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>None anticipated</u>  | <u>none</u>                        | <u>none</u>       |

Primary Route of Exposure/Hazard: NA

(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             |
| Safety toe work shoes/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 checked="" type="checkbox"/> No      | Other..... <input type="checkbox"/> Yes <input type="checkbox"/> No                                     |

**Modifications/Exceptions:** Tyvek coverall to protect against natural hazards (e.g., ticks) if working/walking through areas of high grass. Use insect repellants containing at least 10% DEET if necessary. Follow manufacturer's recommendations for proper application and reapplication. If working in areas where snakes are a threat, wear snake chaps to protect against bites. High visibility vest if near active traffic areas. Hearing protection if in high noise areas.

- |   |                          |                          |                                     |
|---|--------------------------|--------------------------|-------------------------------------|
| 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: Suspend site activities in the event of inclement weather.

Permit Issued by: \_\_\_\_\_ Permit Accepted by: \_\_\_\_\_

**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.

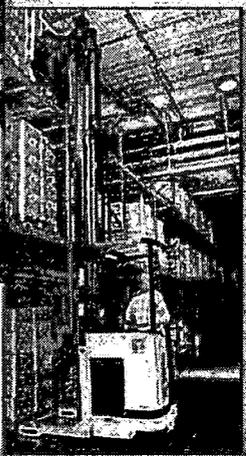
## EMPLOYERS:

- 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



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

**1-800-321-OSHA**

[www.osha.gov](http://www.osha.gov)

OSHA 3103-12-002