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HEALTH AND SAFETY PLAN FOR SOLID WASTE MANAGEMENT UNIT 9 PESTICIDE CONTROL AREA SUPPLEMENTAL SAMPLING NSA CRANE IN

2/1/2011

TETRA TECH NUS

Comprehensive **L**ong-term **E**nvironmental **A**ction **N**avy

CONTRACT NUMBER N62470-08-D-1001

Health and Safety Plan

for

SWMU 9 - Pesticide Control Area Supplemental Sampling

Naval Support Activity (NSA)
Crane, Indiana

Contract Task Order F273

February 2011

NAVFAC Naval Facilities Engineering Command
Midwest
201 Decatur Avenue
Building 1A, Code EV
Great Lakes, Illinois 60088

TETRA TECH NUS, Inc.

HEALTH AND SAFETY PLAN

FOR

SWMU 9 - PESTICIDE CONTROL AREA SUPPLEMENTAL SAMPLING
AT
NAVAL SUPPORT ACTIVITY
CRANE, INDIANA

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY CONTRACT

Submitted to:
Naval Support Activity
Crane, Indiana

Submitted by:
Tetra Tech NUS, Inc.
234 Mall Boulevard, Suite 260
King of Prussia, Pennsylvania 19406

Contract Task Order (CTO) F273
Contract Number N62470-08-D-1001

February 2011

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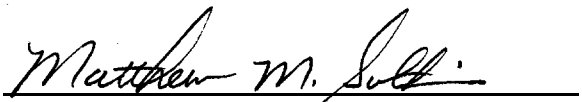

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1.0 INTRODUCTION

The objective of this Health and Safety Plan (HASP) is to provide the safety and health requirements, practices and procedures for Tetra Tech NUS, Inc. (Tetra Tech) and subcontractor personnel at Solid Waste Management Unit (SWMU) 9 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 CFR 1910.120 (OSHA's Hazardous Waste Operations and Emergency Response Standard). Both documents must be present at the site to satisfy these requirements.

This HASP has been written to support proposed tasks and techniques associated with the scope of work as presented in Section 4.0. It has been developed using the latest available information regarding known or suspected chemical contaminants and potential physical hazards associated with the proposed work at the site. Should the proposed work site conditions and/or suspected hazards change, or if new information becomes available, this document will be modified. Changes to the HASP will be made with the approval of the Tetra Tech Site Safety Officer (SSO) and the Tetra Tech Health and Safety Manager (HSM). Requests for modifications to the HASP will be directed to the SSO who will determine whether to make the changes. The SSO will notify the Project Manager (PM), who will notify the affected personnel of changes.

1.1 AUTHORITY

This work is authorized under the Comprehensive Long - Term Environmental Action Navy (CLEAN) contract, administered through the U.S. Navy Southeast, Naval Facilities Engineering Command, as defined under Contract No. N62407-84-D-1001; Contract Task Order Number F273.

1.2 KEY PROJECT PERSONNEL AND ORGANIZATION

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

are the primary point of contact and have the primary responsibility for observing and implementing this HASP and for overall on-site health and safety.

- The Tetra Tech PM is responsible for the overall direction and implementation of health and safety for this work.

- 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:

  - Verify training and medical status of on-site personnel in relation to site activities.
  - Assist and represent Tetra Tech with emergency services (if needed)
  - Provide elements site-specific training for onsite personnel.

- The Tetra Tech SSO 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 HSM.

1.3 STOP WORK AUTHORIZATION

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

1.4 SITE INFORMATION AND PERSONNEL ASSIGNMENTS

Site Name: Naval Support Activity **Address:** Crane, Indiana

Remedial Project Manager: Howard Hickey **Phone Number:** (847) 688-5999

Site Contact: Thomas Brent **Phone Number:** (812) 854-6160

Site Address: 300 Highway 361 Crane, IN 47522-5001

Purpose of Site Visit: Tetra Tech personnel will collect confirmation samples from within the sidewalls and floors of the Wash Rack. Soil samples will also be taken using a hand auger and direct push technology (DPT).

Proposed Start-up Date: February 28, 2011

Project Team:

Tetra Tech Personnel:	Discipline/Tasks Assigned:	Phone:
Anthony Klimek, PE	PM	(513) 557-5057
Matthew M. Soltis, CIH, CSP	Manager of Health and Safety	(412) 921-8912
James K. Laffey	PHSO	(412) 921-8678
George Ten Eyck, P.G.	FOL	(513) 557-5043
Brian Kyser	SSO	(513) 557-5067

Prepared by: James K. Laffey

2.0 EMERGENCY ACTION PLAN

2.1 INTRODUCTION

This section has been developed as part of a planning effort to direct and guide field personnel in the event of an emergency. In the event of an emergency, the field team will primarily 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 RPM (Howard Hickey) 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.

- Notifying Base Fire Protection and Emergency Services of scheduled events and activities.

- Providing CPR/First Aid trained personnel 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. This information will include the following:

  - Chemical Inventory (of chemicals used onsite), with Material Safety Data Sheets.
  - Onsite personnel medical records (Medical Data Sheets).
  - A log book identifying personnel onsite each day.
  - Hospital route maps with directions (these should also be placed in each site vehicle).
  - Emergency Notification - phone numbers.

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

- Identifying a chain of command for emergency action.

- Educating site workers to the hazards and control measures associated with planned activities at the site, and providing early recognition and prevention, where possible.

- Performing periodic 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, 6.0 and 11.0.

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 instigate necessary control measures. However, if the FOL and the SSO determine that control measures are not sufficient to eliminate the hazard, Tetra Tech will withdraw from the site and notify the appropriate response agencies listed in Table 2-1.

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 contact Howard Hickey will be informed of any incident or accident that requires medical attention.

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

TABLE 2-1
EMERGENCY CONTACTS
CRANE, INDIANA

CONTACT	TELEPHONE
Base Emergency Numbers* (Fire Department, Base Security, Ambulance) • When dialing from an on-base phone • When dialing from cell or off-base phone	**911** (812) 854-1333
Bedford Ambulance	(812) 279-6545
Bloomington Hospital (Bloomington, IN)	(812) 336-9515
Hospital, Bedford Medical Center (Bedford, IN)	(812) 275-1200
Poison Control Center	(800) 222-1222
National Response Center	(800) 424-8802
Base Environmental Office	(812) 854-3114
Base Contact, Thomas Brent	(812) 854-6160
Project Manager, Anthony Klimek	(513) 557-5057
Tetra Tech Field Office, Building 3245	(812) 854-0280
Tetra Tech Office, Pittsburgh	(412) 921-7090
CLEAN HSM, Matthew M. Soltis, CIH, CSP	(412) 921-8912
Tetra Tech FOL, George Ten Eyck, P.G.	(513) 557-5043
Tetra Tech PSHO James K. Laffey	(412) 921-8678 (office) (412) 370-6668 (cell)
Tetra Tech SSO, Brian Kyser	(513) 557-5067

***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

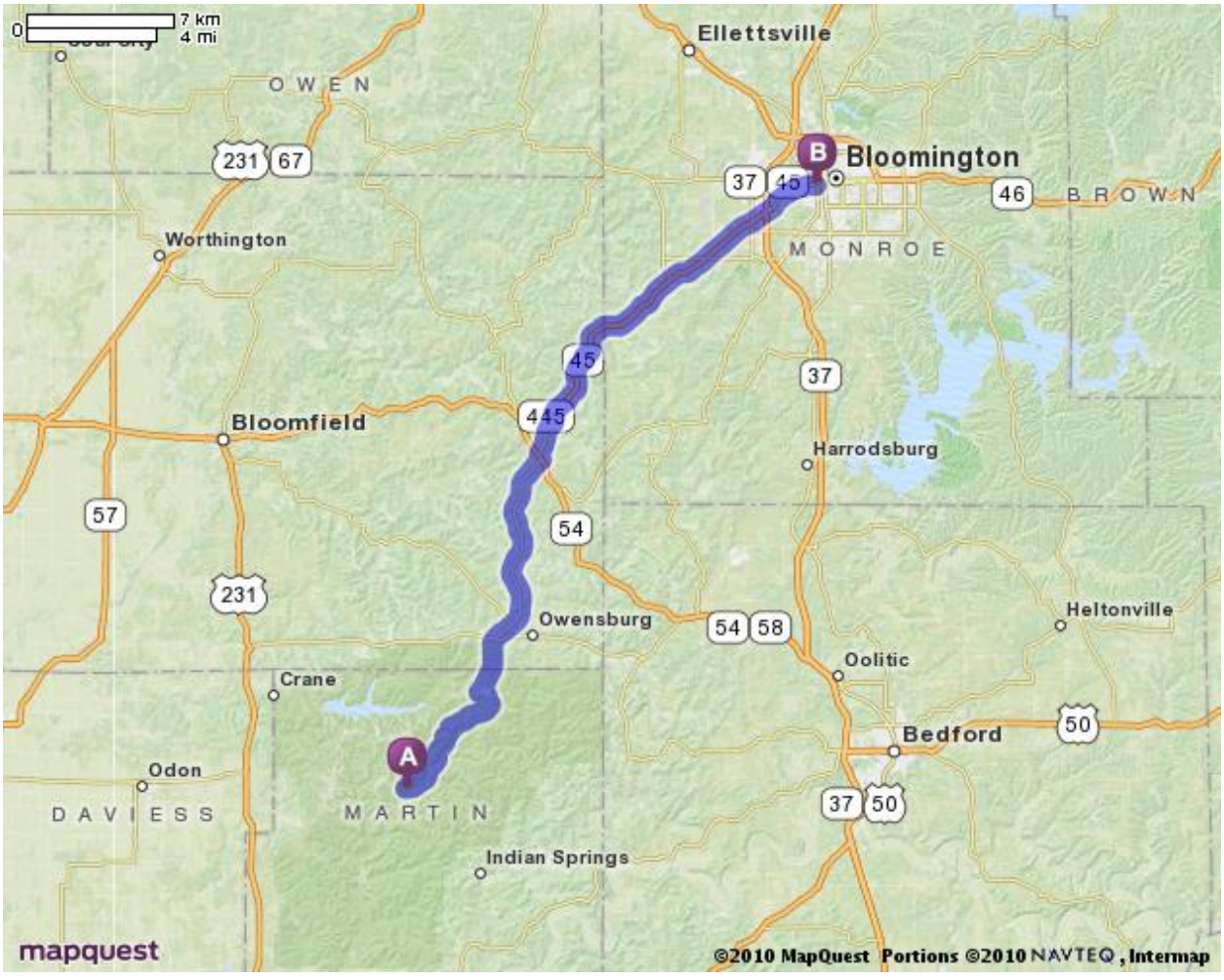
30.63 miles - about 54 minutes

- 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

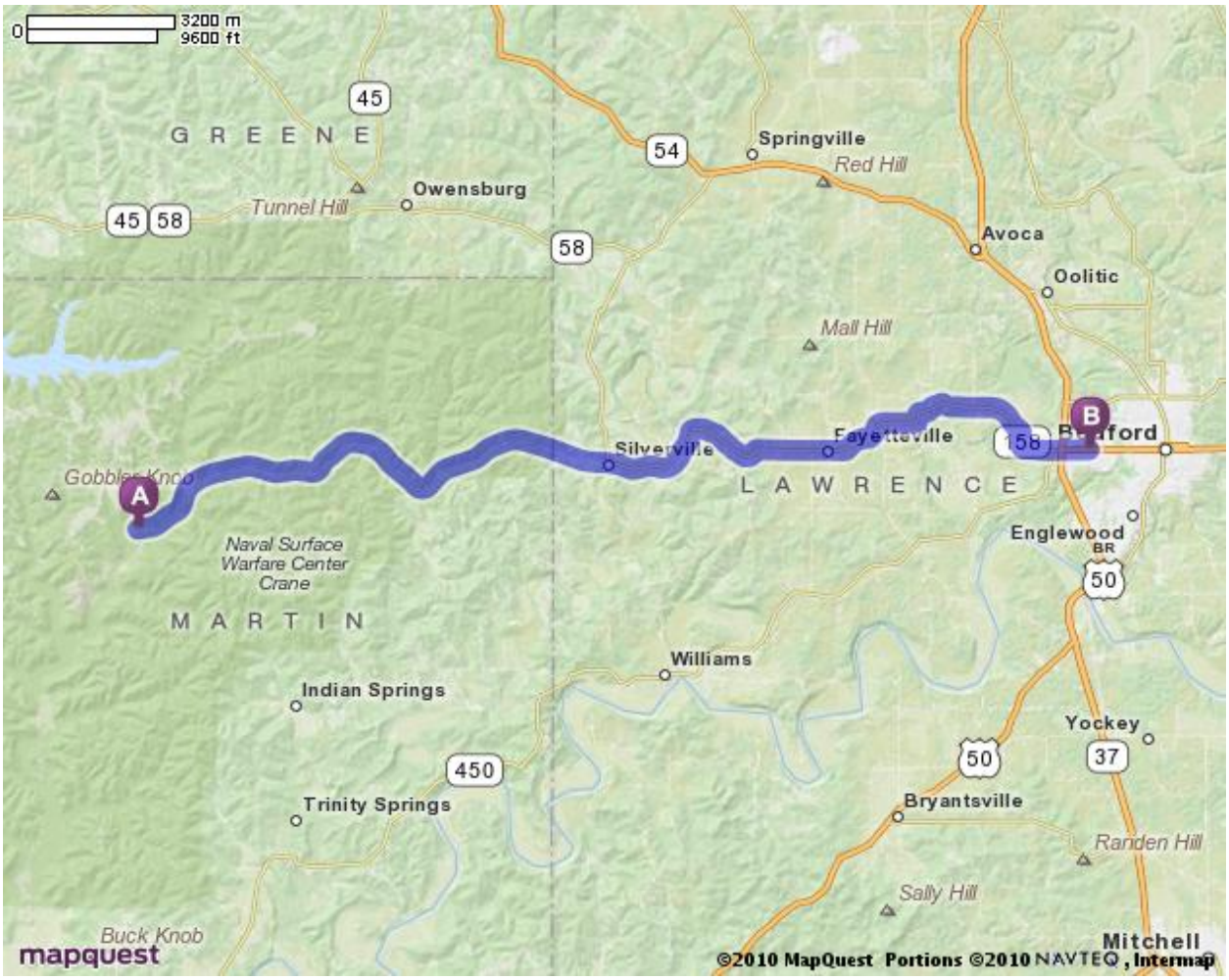
- Exit the base on H-58, through the Bedford Gate.
- Head East on State Highway 158.
- State Highway 158 becomes 16th Street upon entering the City of Bedford.
- The medical center is on the right shortly after Plaza Drive.

FIGURE 2-2

MAP TO

BEDFORD MEDICAL CENTER ROUTE MAP VIA BEDFORD GATE

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



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.
  - Table 2-1 explains the necessary phone number prefixes for emergency contact situations.
- 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 at all times 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. At least two First-Aid certified personnel will be on site dui ring operations.

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.

Medical attention above First-Aid level support will require assistance from the designated emergency response agencies. Attachment II provides the procedure to follow when reporting an injury/illness, and the form to be used for this purpose.

2.10 INJURY/ILLNESS REPORTING

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

2.10.1 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.tetratech.com/

Once on the "My Tetratech" 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.tetratech.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.

2.11 DRILL/INCIDENT AFTER ACTION CRITIQUE

The FOL will conduct a drill or exercise to test the Emergency Action Plan. A critique with the site personnel after each drill or incident will be conducted. This critique provides a mechanism to review the incidents and exercises or drills to determine where improvements can be made. For incidents recorded in TOTAL, the FOL will utilize the Lessons Learned component for the critique.

3.0 SITE BACKGROUND

NSA Crane is located in Crane, Indiana approximately 75 miles southwest of Indianapolis and 71 miles northwest of Louisville, Kentucky. The facility encompasses more than 100 square miles (64,463 acres) in Davies, 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. The Depot's name was changed to NAD, Crane in 1943. In 1975, the name was changed to Naval Weapons Support Center, Crane and in 1992, the name was again changed to Naval Surface Warfare Center, Crane. 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.

The Pesticide Control Area is located in the central portion of the NSA Crane, approximately 5 miles northeast of the Burns City Gate No. 2. The site (including space between the three distinct areas where site operation did not occur) occupies approximately 11 acres. Site operations were centered around the three areas (Building 55, Building 2189, and the R-150 Tank area) previously identified. The site is bounded on the east by Highway 45.

Pesticides control activities, which were conducted at the site from 1950 to 1974, consisted of the storage and management of various types and quantities of pesticides and herbicides. Pesticide spray tanks and containers were reportedly rinsed in the vicinity of Building 2189 on the west side of the building.

Potential pesticides and herbicides include, but not limited to, 2,4-D, 2,4,5-T, silvex (a mixture of 2,4-D and 2,4-T), fenac, monuron, ureabor, carbaryl, chlordane, DDT, diazinon, dieldrin, lindane, malathion, and pyrethrum.

4.0 SCOPE OF WORK

This section describes the project tasks that will be performed at NSA by TetraTech. The planned activities involved in this effort are presented in detail in the Work 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 9 include the following:

- Mobilization and demobilization
- Soil boring using concrete coring, hand augering, and DPT
- Collection of concrete and soil samples
- Decontamination of sampling equipment

For more detailed description of the associated tasks refer to the Work Plan. 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 all task participants prior to initiating any task. Partially completed SWPS are found in Appendix III. Additionally, potential hazard and hazard control matters that are relevant but are not necessarily task-specific are addressed it 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 for the transfer of contamination exists is prohibited.

- Wash hands and face thoroughly upon leaving a contaminated or suspected contaminated area.

- If a source of potable water is not available at the work site that can be used for hands-washing, the use of waterless hands cleaning products will be used, followed by actual hands-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).

- Non-essential vehicles and equipment should remain within the support zone.

- Establish appropriate decontamination procedures for leaving the site.

- Immediately report all injuries, illnesses, and unsafe conditions, practices, and equipment to the SSO.

- Observe co-workers for signs of toxic exposure and heat or cold stress.

- Inform co-workers of potential symptoms of illness, such as headaches, dizziness, nausea, or blurred vision.

5.2 DPT SAFE WORK PRACTICES

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

- Identify underground utilities and buried structures before commencing any DPT operations. Follow the TtNUS Utility Locating and Excavation Clearance Standard Operating Procedure.

- DPT rigs will be inspected by the SSO or designee, prior to the acceptance of the equipment at the site and prior to the use of the equipment.

- Repairs or deficiencies identified will be corrected prior to use.

- The inspection will be accomplished using the Equipment Inspection Checklist for DPT rigs provided in Attachment IV.

- After the initial inspection and release for use on site, 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 all machine guarding is in place and properly adjusted.

- Block the DPT rig 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 near or surrounding operating equipment.

- The driller's helper will establish an equipment staging and laydown plan.

- Keep the work area clear of clutter and slips, trips, and fall hazards.

- Mechanisms to secure heavy objects such as DPT flights will be provided to avoid the collapse of stacked equipment.

- 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 centrally located equipment decontamination area

- Support functions (sampling and screening stations) will be maintained a minimum distance from the DPT rig of the height of the mast plus five feet, but not less than 25 feet around the rig.

- 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.)

- In order to minimize contact with potentially contaminated tooling and media and to minimize lifting hazards, multiple personnel should be used to move auger flights and other heavy tooling.

- Only personnel absolutely essential to the work activity will be allowed in the exclusion zone.

- Equipment used within the exclusion zone will undergo a complete decontamination and evaluation by the FOL and/or the SHSO to determine cleanliness prior to moving to the next location, exiting the site, or prior to down time for maintenance.

- Motorized equipment will be fueled prior to the commencement of the day's activities.

- When not in use DPT rig will be shutdown, and emergency brakes set and wheels will be chocked to prevent movement.

- Investigative areas 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 immediately removed, the area will be barricaded to limit access.

5.3 PORTABLE GENERATOR SAFE WORK PRACTICES

5.3.1 Major Causes of Accidents

- Shocks and electrocution from improper use of power or accidentally energizing other electrical systems.
- Carbon monoxide from a generator's exhaust.
- Fires from improperly refueling the generator or inappropriately storing fuel.

5.3.2 Generator Operation

- Inspect portable generators for damage or loose fuel lines that may have occurred during transportation and/or handling.
- Keep the generator dry.
- Maintain and operate portable generators in accordance with the manufacturer's use and safety instructions.
- Before refueling the generator, turn it off and let it cool down.
- Gasoline spilled on hot engine parts could ignite.
- Never store fuel indoors.

5.3.3 Electrical Considerations

- Never attach a generator directly to the electrical system of a structure (home, office or trailer) unless the generator has a properly installed transfer switch because this creates a risk of electrocution for utility workers.
- Always plug electrical appliances directly into the generator using the manufacturer's supplied cords.
- Use undamaged heavy-duty extension cords that are grounded (3-pronged).
- Use ground-fault circuit interrupters (GFCI) as per the manufacturer's instructions.
- Inspect extension cords for physical defects.
- Extension cords will be rated for outdoor use and will be of significant wire gage to carry intended amperage.
  - The longer the distance the heavier gauge of wire will be required.
  - When in doubt use a heavier gauge.
- Extension cords will be kept from standing water.
- Employees will not plug or unplug cords with wet gloves.
- Portable generators shall be grounded.

5.3.4 Carbon Monoxide Poisoning

- Never use a generator indoors.
- Never place a generator outdoors near doors, windows, or vents.
- If you or others show symptoms of CO poisoning — dizziness, headaches, nausea, tiredness—get to fresh air immediately and seek medical attention.

5.4 HAND AUNGERING SAFE WORK PRACTICES

Hand augering is physically demanding. Potential injuries include muscle strains, tendon or ligament sprains, or back or other soft-tissue injuries, as well as bruises, abrasions or cuts from handling or operating the hand auger. Other potential injuries from physical threats during this task include foot injuries, eye injuries, and injuries from unintentional contact with underground utilities.

- Prior to beginning any soil-disturbance activities following the Tetra Tech Utility Locating and Excavation Clearance SOP in Section 7.0 of the HSGM.

- Assuring that only workers who can physically perform this activity without injury participate in operating a hand auger

- Ensuring that the hand auger tooling is maintained in effective working order

- Avoiding injury by stopping if strong resistance is encountered (such as if impassable rocky conditions are encountered)

- Getting assistance if needed; and wearing appropriate PPE (work gloves, steel toe shoes, and safety impact eye protection)

5.5 AUTOMOBILE SAFE WORK PRACTICES

A major part of each workday is spent in an automobile. Driving safely is critical to the success of this project. Following these work-related safe driving practices will help you remain safe and on the road.

5.5.1 Stay Safe

- Use a seat belt at all times – driver and passenger(s).
- Be well-rested before driving.
- Avoid taking medications that make you drowsy.
- Set a realistic goal for the number of miles that you can drive safely each day.
- Share driving responsibility with your partner
- If you are impaired by alcohol or any drug, do not drive.

5.5.2 Stay Focused

- Driving requires full attention.
- Avoid distractions (adjusting the radio or other controls, eating or drinking, and talking on the phone).
- Continually search the roadway to be alert to situations requiring quick action.

5.5.3 Avoid Aggressive Driving

- Keep your cool in traffic!
- Be patient and courteous to other drivers.
- Do not take other drivers' actions personally.
- Allow plenty of travel time.

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

6.1.1 Pesticides

Effects of exposure to pesticides generally fall into three categories: allergic, acute and delayed effects.

Allergic effects - Some people develop a reaction after being exposed to a certain pesticide, a process known as sensitization. Such effects include asthma, skin irritation and eye and nose irritation. Not all people develop allergies; however, certain people seem to be more sensitive than others to chemical irritants.

Acute effects - Acute effects appear immediately or within 24 hours of exposure. These are more accurately diagnosed than delayed effects because they tend to be more obvious. Often they are reversible if appropriate medical care is given promptly, but may be fatal if not treated. Acute effects of pesticides are classified according to the site of the exposure: oral, inhalation, dermal and eye exposures.

Delayed effects - Sometimes, the term "chronic effects" is used to describe delayed effects, but this is only one type of delayed effect. Delayed effects also include developmental, reproductive and systemic effects. Chronic effects are illnesses or injuries that persist over long periods and may not appear until several years after exposure to a pesticide. Chronic effects include production of tumors, malignancy or cancer and changes in the genes or chromosomes. Developmental and reproductive effects occur to the fetus in the womb or by exposure to the reproductive system in men as well as women. These effects include birth defects, miscarriage or stillbirth, infertility or sterility in men or women and impotence in men. A delayed systemic effect is an illness or injury that does not appear within 24 hours of exposure. Such effects include blood disorders such as anemia or an inability to coagulate; nerve or brain disorders such as paralysis, tremor, behavioral changes and brain damage; skin disorders such as rash; lung and respiratory disorders such as emphysema and asthma; and liver and kidney disorders such as jaundice and kidney failure.

6.1.2 Exposure

Potential exposure concerns to these pesticides may also occur through ingesting or coming into direct skin contact with contaminated soils. The likelihood of worker exposure concerns through these two

routes are also 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 surgeon's-style 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.

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

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 Underground 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. Clearance of underground utilities for will be conducted by the Navy construction contractor.

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 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.

6.2.5 Vehicular and Equipment Traffic

Hazards associated with vehicular and equipment traffic may exist during site activities. To minimize the potential for injuries associated with potential vehicular hazards, site personnel will be instructed to maintain awareness of traffic and moving equipment when performing site activities. When working near roadways, wear high visibility vests.

6.2.6 Heavy Equipment Hazards

The following precautions will be used when working at or near the heavy equipment:

- Good communication is essential.
- A standardized set of hand signals should be used by the operator and signal person.
- Operators should always know exactly where all ground based workers are located, and the wearing of high visibility vests will help the operator to locate them quickly.

- The equipment should have a back up warning alarm that can be heard by all nearby workers. Two-way radios are also valuable communication tools.
- Wear hearing protection when required.
- If it has been determined that noise levels around the equipment could potentially cause hearing loss, always use protective plugs or muffs when working on or around the equipment.
- Never jump onto or off the equipment.

6.2.7 Noise in excess of 85 decibels (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.

6.3 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.

6.3.1 Ambient temperature extremes (heat/cold 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 cold stress. This is addressed in detail in section 4.0 of the Tetra Tech HSGM, which the SSO is responsible for reviewing and implementing as appropriate on this project.

In general, four factors contribute to cold stress: cold temperatures, high or cold wind, dampness and cold water. A cold environment forces the body to work harder to maintain its temperature. Cold air, water, and snow all draw heat from the body. Wind chill is the combination of air temperature and wind speed. Early signs of cold stress include shivering, lack of coordination, stumbling, fumbling hands, slurred speech, memory loss, and pale, cold skin, which may be followed by the inability to walk or stand, confusion, severe muscle stiffness or unconsciousness, and eventually death.

To prevent cold stress, the following preventive measures are to be implemented by the SSO:

- When possible, schedule the tasks so that they are performed during warmer periods of the day such as late afternoon

- Educate the field staff in cold stress signs and symptoms so that they can monitor themselves and their co-workers

- Schedule frequent breaks during the coldest parts of the day (such as a few minutes each hour). Breaks should be in warm areas, and in a location where workers can remove PPE, wash their hands, drink fluids and warm themselves.

- Drinking fluids should be non-caffeinated. Sports-drinks with electrolytes are acceptable provided that they do not contain alcohol. Water is also acceptable.

For more information on cold stress recognition and prevention, consult section 4.0 of the Tetra Tech HSGM.

6.3.2 Inclement Weather

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

7.0 AIR MONITORING

None of the contaminants are expected to be present in significant concentrations to present an inhalation hazard during planned site activities. As a precautionary measure to assure that such exposures are avoided and documented, a direct reading instrument will be used to monitor worker exposures to oxygen deficient atmosphere present at the site. For this project, a multigas meter will be used to monitor the air in the confined space.

7.1 INSTRUMENTS AND USE

Instruments will be used primarily to worker breathing zone 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. If the appropriate instrument Action Level is exceeded (see below), the following process will be followed:

- The SSO shall order all personnel to stop work and exit 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 Multi Gas Meters / Oxygen (O_2) Meters

Multi gas meters and/or LEL/O_2 will be used during site activities to evaluate levels of oxygen, or carbon monoxide in the BZ. This instrument will be used during confined space entry operations. The multi gas meter use interchangeable sensors that detect a variety of common chemicals including hydrogen sulfide, carbon monoxide, hydrogen cyanide, sulfur dioxide, etc. However, on this site the only sensors needed will be O_2 and CO. They provide readings in the part per million range. O_2 meter provides readings in percent oxygen.

In order to continue working in the confined space the oxygen level must be between 19.5% and 23.5%. The CO level must remain below 25 ppm.

7.2 INSTRUMENT MAINTENANCE AND CALIBRATION

Operational checks and field calibration will be performed on all instruments each day prior to their use. Field calibration will be performed on instruments according to manufacturer's recommendations (for example, the Multi-gas meter must be field calibrated daily and an additional field calibration must be performed at the end of each day to determine any significant instrument drift). These operational checks and calibration efforts will be performed in a manner that complies with the employees health and safety training, the manufacturer's recommendations, and with the applicable manufacturer standard operating procedure (copies of which can be found in the Health & Safety Guidance Manual which will be maintained on site for reference). All calibration efforts must be documented. Figure 7-1 is provided for documenting these calibration efforts. This information may instead be recorded in a field operations logbook, provided that all of the information specified in Figure 7-1 is recorded. This required information includes the following:

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

7.3 DOCUMENTING INSTRUMENT READINGS

The SHSO 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 SHSO is also responsible for ensuring that all instrument use is documented. This requirement can be satisfied either by recording instrument readings on pre-printed sampling log sheets or in a field 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 SHSO must document the following information for each use of an air monitoring device:

- Date, time, and duration of the reading
- Site location where the reading was obtained
- Instrument used (e.g., Multigas/O_2 meter, etc.)
- Personnel present at the area where the reading was noted
- Other conditions that are considered relevant to the SHSO (such as weather conditions, possible instrument interferences, etc.)

FIGURE 7-1

DOCUMENTATION OF FIELD CALIBRATION

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

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

8.0 TRAINING/MEDICAL SURVEILLANCE REQUIREMENTS

8.1 INTRODUCTORY/REFRESHER/SUPERVISORY TRAINING

This section is included to specify health and safety training and medical surveillance requirements for 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 the 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 CFR 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 be employed to identify personnel who through record review and attendance of the site-specific training are cleared for participation in site activities. This document shall be maintained at the site to identify and maintain an active list of trained and cleared site personnel.

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.

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

FIGURE 8-1

SITE-SPECIFIC TRAINING DOCUMENTATION

My signature below indicates that I am aware of the potential hazardous nature of performing field investigation activities at NSA Crane, Indiana and that I have received site-specific training which included the elements presented below:

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

I have been given the opportunity to ask questions and all of my questions have been answered to my satisfaction. The dates of my training and my medical surveillance requirements indicated below are accurate.

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

9.0 SITE CONTROL

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

9.1 EXCLUSION ZONE

The exclusion zone will be considered those areas of the site of known or suspected contamination and where excavations have taken place. The Navy contractor will establish the exclusion zones and any storage areas. It is not anticipated that significant amounts of soil contamination are present in the proposed work areas of this site. Furthermore, once intrusive activities have been completed and soil contamination has been removed, the potential for exposure is again diminished and the area can then be reclassified as part of the contamination reduction zone. Therefore, 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 surrounding the point of operation. When possible, exclusion zones will be delineated using barrier tape, cones and/or drive poles, and postings to inform site personnel.

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. The personnel and equipment decontamination will not take place in this area, but will take place at a central location established for this project. This area instead will serve as a focal point in supporting exclusion zone activities. When applicable, this area will be delineated using barrier tape, cones and/or drive poles, and postings to inform and direct facility personnel.

9.3 SUPPORT ZONE

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

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 is provided in Figure 9-1. Partially completed SWPs for the work to be performed are attached to 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 all 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 all 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. All SWPs require the signature of the FOL or SSO.

9.5 SITE VISITORS

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

Site visitors must be escorted and restricted from approaching any work areas where they could be exposed to hazards from Tetra Tech operations. If a visitor has authorization from the client and from the Tetra Tech Project Manager to approach our work areas, the FOL must assure that the visitor first provides documentation indicating that he/she/they have successfully completed the necessary OSHA introductory training, receive site-specific training from the SSO, and that they have been physically cleared to work on hazardous waste sites. Site visitors for the purpose of this document are identified as representing the following groups of individuals:

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

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

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

- All site visitors will be routed to the FOL, who will sign them into the field logbook.

- Information to be recorded in the logbook will include the individual's name (proper identification required), the entity which they represent, and the purpose of the visit.

- All site visitors will be required to produce the necessary information supporting clearance to the site. This shall include information attesting to applicable training and medical surveillance as stipulated in Section 8.0 of this document.

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

9.6 SITE SECURITY

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

9.7 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 cell phones or 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 Inspector Initials_____Tetra Tech
Equipment Inspection required ☐ Yes ☐ No Inspector Initials _____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: _____

VI.

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

Primary Route(s) of Exposure/Hazard: _____

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

VII. Additional Safety Equipment/Procedures

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

Modifications/Exceptions: _____

VIII. Site Preparation

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

IX. Additional Permits required (Hot work, confined space entry, excavation etc.). ☐ Yes ☐ No
If yes, SHSO 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 Investigative-Derived Wastes [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. Any aqueous IDW will be transported to the sewer systems and discharged to the NSA Industrial Sewer System. PPE will be disposed into trash dumpsters. Soil IDW will remain on-site.

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 staging 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 all IDW generated as a result of this scope of work will be disposed of 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. 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 this occur, notification of the appropriate Emergency Response agencies will be carried out by the FOL or SSO in accordance with the procedures discussed in Section 2.0 of this HASP.

11.0 CONFINED-SPACE ENTRY PROGRAM

This section presents procedures that must be followed for permit-required confined space entries. If any of the space preparation or entry requirements discussed in this section cannot be met, entry shall not proceed until the space is evaluated by the PM and the SSO. This section supplements the Tetra Tech "Confined Space Entry Program," and provides specific procedures for permit-required confined space entry. The entry permit, hazard inspection, atmospheric testing, ventilation, respiratory protection, pre-entry briefing, communication, evacuation, and rescue provisions for permit-required confined space entry are discussed below.

11.1 ENTRY PERMIT

Tetra Tech has established a confined space entry permit (CSEP) system to ensure safe entry and safe performance of work within a permit-required confined space. Before entry into a permit-required confined space can occur, a CSEP must be issued. The CSEP is a written authorization and approval that specifies the location of the confined space, specifies the type of work to be conducted in the space, certifies that all existing and potential hazards have been evaluated, and verifies that necessary protective measures have been taken to ensure the safety of each worker.

The CSEP (Table 11-1) must be completed in its entirety and signed by a permit authorizer (either the PM or the SSO). Blank entries are not allowed, and all sections requesting a specific time or date must be completed. Additional sheets may be necessary. The permit authorizer shall do the following:

- Determine that the entry permit contains the requisite information and that all tests specified by the permit have been conducted before endorsing the permit and allowing entry

- Determine that the necessary procedures, practices, and equipment necessary for safe entry are in effect before allowing entry

- Cancel entry authorization and terminate entry whenever unacceptable entry conditions are present;

- Take the necessary steps for concluding an entry operation, such as closing off a permit space and canceling the permit once the authorized work has been completed

- Ensure that confined space entrants are properly trained and that an authorized attendant will remain outside of the confined space to monitor the entrants throughout the entire entry.

FIGURE 11-1
CONFINED SPACE ENTRY PERMIT

CONFINED SPACE ENTRY PERMIT **No:** _____

INITIAL ATMOSPHERIC TESTS PERFORMED

CAUTION: Toxic or flammable gasses or vapors may _____ in the confined space. Be sure to vent at various intervals and locations within the confined space. Always check the oxygen content first.

INITIAL TESTING						
HAZARD TESTED	**ACCEPTABLE RANGE**	**READING**	**DATE AND TIME**	**TESTER INITIALS**	**ACCEPTABLE**	
					YES	**NO**
%Oxygen	19.5-23.5%	%				
%LEL	10% or less	%				
	PEL=	PPM=				
	PEL=	PPM=				
	PEL=	PPM=				

EVACUATION PROCEDURE

Route: _____

Assembly Points: _____

RESCUE PROCEDURE – Initiate self rescue, if incapacitated; initiate external extraction; If unable to facilitate external extraction; notify the Fire Dept. for entry and removal

PLAN DESCRIPTION

ON-SITE RESCUE CONTACTS			
PHONE NUMBER	RADIO NUMBER	PAGER NUMBER	OUTSIDE SOURCES AND PHONE
			FIRE DEPARTMENT
			AMBULANCE
			HOSPITAL
			OTHER

SPECIAL EQUIPMENT NEEDED

- ☐ RESPIRATORS (Type): _____
- ☐ SAFETY HARNESSES/WRISTLETS
- ☐ LIFELINES
- ☐ HOISTING APPARATUS
- ☐ VENTILATION EQUIPMENT: _____
- ☐ TEMPORARY LIGHTING (Type/voltage): _____
- ☐ NON-SPARKING TOOLS
- ☐ PROTECTIVE CLOTHING: _____
- ☐ OTHER:

ENTRY SUPERVISOR'S SIGNATURE	DATE	PERMIT RECEIVER SIGNATURE	DATE

CONFINED SPACE ENTRY PERMIT **No:** _____

GENERAL INFORMATION:

DESCRIPTION OF THE CONFINED SPACE:

DATE ISSUED	TIME ISSUED	DATE EXPIRES	TIME EXPIRES
	:		:

ENTRY SUPERVISOR

ATTENDANT(S)

COMMUNICATION BETWEEN ATTENDANT(S) – ENTRANTS

‘ VOICE ‘ LIGHT ‘ RADIO ‘ OTHER

DESCRIPTION OF WORK:

CHECKLIST FOR ISOLATION AND UNAUTHORIZED ACCESS PREVENTION

	YES	NO	NA	INITIAL
External Battery(ies) in Place	☐	☐	☐	_____
Mechanical Lockout/Tagout	☐	☐	☐	_____
Lines/Pipes Disconnected	☐	☐	☐	_____
Lines/Pipes Blocked	☐	☐	☐	_____
Lines/Pipes Capped	☐	☐	☐	_____
Lines/Pipes Blinded	☐	☐	☐	_____
Warning Signs	☐	☐	☐	_____
Other:_____	☐	☐	☐	_____

REPORT ANY UNAUTHORIZED ENTRY TO: **Health & Safety Department and Project Management**	PHONE NO.	RADIO NO.	PAGER NO.

PRE-ENTRY CHECKLIST

PURGING, INERTING, OR FLUSHING

PERFORMED ☐ YES ☐ NO ☐ NA

METHOD USED ☐ Nitrogen ☐ steam ☐ Water ☐ Other (specify)

_____

_____

MECHANICAL VENTILATION

Estimated Confined Space Volume:_____

Air Exchange Rate Required: _____

	Initial	Continuous	Partial	Description
Fresh Air Injection	☐ ____hrs.	☐	☐	_____
General	☐ ____hrs.	☐	☐	_____
Local Exhaust	☐ ____hrs.	☐	☐	_____

SPECIFIC HAZARDOUS TASKS

Certain tasks performed in confined spaces greatly increase the risks to entrants. Check tasks to be performed.

- ☐ WELDING/GRINDING
- ☐ THERMAL CUTTING
- ☐ SOLDERING/BRAZING
- ☐ ELECTRICAL
- ☐ OTHER, EXPLAIN: _____
- ☐ PAINTING OR CLEANING WITH SOLVENTS
- ☐ CLEANING/SWEEPING/VACUUMING
- ☐ SCRAPING/REMOVING RESIDUE
- ☐ CHEMICAL USE

Additional Permits Required ☐ Hot Work Permit ☐ Utility Locating/Excavation Clearance

ENTRY SUPERVISOR'S SIGNATURE	DATE	PERMIT RECEIVER SIGNATURE	DATE

CONFINED SPACE ENTRY PERMIT **No:**

PERIODIC ATMOSPHERIC TEST RESULTS

TESTER INFORMATION	ATMOSPHERIC HAZARD TESTED	ACCEPTABLE RANGE OF HAZARD	HAZARD MONITORING RESULTS	ACCEPTABLE	
				YES	NO
Date	Oxygen Content ($\%0_2$)	19.5%-23.5%	%		
Time:	Combustible Gas (%LEL)	0%-10%	%		
Initials:	Other (Specify)	PEL ppm	Ppm		
Date	Oxygen Content ($\%0_2$)	19.5%-23.5%	%		
Time:	Combustible Gas (%LEL)	0%-10%	%		
Initials:	Other (Specify)	PEL ppm	ppm		
Date	Oxygen Content ($\%0_2$)	19.5%-23.5%	%		
Time:	Combustible Gas (%LEL)	0%-10%	%		
Initials:	Other (Specify)	PEL ppm	ppm		
Date	Oxygen Content ($\%0_2$)	19.5%-23.5%	%		
Time:	Combustible Gas (%LEL)	0%-10%	%		
Initials:	Other (Specify)	PEL ppm	Ppm		
Date	Oxygen Content ($\%0_2$)	19.5%-23.5%	%		
Time:	Combustible Gas (%LEL)	0%-10%	%		
Initials:	Other (Specify)	PEL ppm	ppm		
Date	Oxygen Content ($\%0_2$)	19.5%-23.5%	%		
Time:	Combustible Gas (%LEL)	0%-10%	%		
Initials:	Other (Specify)	PEL ppm	ppm		
Date	Oxygen Content ($\%0_2$)	19.5%-23.5%	%		
Time:	Combustible Gas (%LEL)	0%-10%	%		
Initials:	Other (Specify)	PEL ppm			
Date	Oxygen Content ($\%0_2$)	19.5%-23.5%	%		
Time:	Combustible Gas (%LEL)	0%-10%	%		
Initials:	Other (Specify)	PEL ppm			
Date	Oxygen Content ($\%0_2$)	19.5%-23.5%	%		
Time:	Combustible Gas (%LEL)	0%-10%	%		
Initials:	Other (Specify)	PEL ppm			

CONFINED SPACE ENTRY PERMIT **No:**

PERSONNEL ENTRY LOG
DESCRIPTIONOF CONFINED SPACE

ENTRY SUPERVISOR	**DATE**

ATTENDANT(S)

AUTHORIZED ENTRANT'S NAME	**TIMES IN AND OUT**							
	IN	**OUT**	**IN**	**OUT**	**IN**	**OUT**	**IN**	**OUT**

- The permit authorizer must be readily available for reviewing the permit and must personally inspect the confined space before the startup of the entry task. The permit authorizer shall then sign the permit.

- The completed permit shall be posted at the entry portal or displayed by any other equally effective means before entry activities begin so that authorized entrants can confirm that all pre-entry preparations have been completed. All authorized entrants shall sign the CSEP after reviewing it.

- A copy of the CSEP shall be furnished to the project manager. The original copy of the permit shall be retained as a permanent record in the project file. The CSEP posted at the work site shall be removed upon completion of the job or the end of the shift, whichever is first.

- The date and time the permit has been authorized for shall be indicated on the permit. Permits are valid for a maximum of 8 hours. Reauthorization of the permit shall be required for each day of entry.

CSEP becomes void under any of the following conditions:

- If work in the confined space does not start within 1 hour after atmospheric testing is performed;
- The job is interrupted for more than 60 minutes for any reason;
- Atmospheric testing of the confined space is discontinued;
- Atmospheric changes occur resulting in (1) an oxygen content below 19.5 percent or above 23.5 percent, (2) greater than 10 percent of the lower explosive limit (LEL) of combustible gases or vapors, or (3) concentration of a hazardous airborne contaminant exceeding its permissible exposure limit;
- Injury or illness of an entrant;
- A power failure affecting lighting or telephone usage; or
- Severe weather

11.2 HAZARD INSPECTION

Before scheduling a confined space entry, the permit authorizer shall inspect the area around the confined space for (1) sources of combustion exhaust, (2) flammable gases, (3) sparks and fire, and (4) objects that might fall into the space.

The confined space and the scope of work within that space shall be evaluated to identify potential hazards and identify and implement appropriate hazard controls. The permit authorizer shall ensure that appropriate hazard controls are in place prior to entry activities. Such hazard controls can include, but are not limited to, the following:

- Lock out and tag out requirements;
- Confined space cleaning procedures;

- Equipment and tool requirements;
- Safe entry and exit procedures; and
- Physical hazard controls (such as hearing protection and heat stress controls.

11.3 ATMOSPHERIC TESTING

Atmospheric testing shall be conducted to evaluate the potential hazards and verify that entry conditions or the space are acceptable. The atmosphere of a confined space should be analyzed using equipment of sufficient sensitivity and specificity to identify and evaluate any hazardous atmospheres that may exist or arise so that appropriate permit procedures can be developed to ensure safe entry.

The duration of testing for each atmospheric contaminant shall be made for at least the minimum response time of the test instrument as specified by the manufacturer plus an allowance for dead space in sampling lines.

Testing shall be conducted to ensure that all spaces are surveyed for hazardous conditions and shall include all sections of noncontiguous spaces and all levels of each space to account for stratification. When monitoring for entries involving descent into atmospheres that may be stratified, measurements shall be recorded at a distance of approximately 4 feet in the direction of travel and to each side. If a sampling probe is used, the entrant's rate of progress should be slowed to accommodate the sampling speed and the detector response.

Atmospheric testing shall be conducted in the following order:

- Oxygen content must be tested for first because most combustible gas meters are oxygen dependent and will not provide reliable readings in an oxygen-deficient atmosphere

- Combustible gases must be tested for next because the threat of fire or explosion is more immediate and life threatening in most cases than exposure to toxic gases and vapors

- Toxic gases and vapors must be tested for last for specific toxic gases and vapors as necessary

Continuous monitoring for oxygen, combustible gases, and specific hazardous contaminants is required in all permit-required confined spaces unless lack of such monitoring is specifically approved by the operating unit health and safety manager (HSM). Results shall be noted regularly on the CSEP.

Equipment for continuous monitoring of gases and vapors shall be explosion-proof (intrinsically safe) and equipped with an audible alarm that will alert personnel when a hazardous condition develops. Testing equipment shall be calibrated in accordance with the manufacturer's recommendations. Calibration

parameters shall be recorded in the field logbook, and each piece of equipment will be tagged with its calibration results. Calibration records should be included in the permanent project file.

Pre-entry evaluation must, at a minimum, include remote atmospheric testing before employee entry and before validation or revalidation of a CSEP to ensure the following:

- An oxygen content between 19.5% and 23.5%
- Less than 10% LEL of combustible gas
- The absence of other atmospheric contaminants, if the space contained toxic, corrosive, or irritant materials

Pre-entry evaluation test data and entry procedures should be reviewed by or under the direction of a technically qualified individual such as a certified industrial hygienist, certified safety professional, or a certified marine chemist.

Verification testing of the atmosphere of the permit space shall be conducted for all contaminants identified during evaluation testing procedures at the time of entry in order to verify that concentrations are within the range of acceptable conditions. Testing results shall be recorded on the CSEP for the space.

11.4 VENTILATION

Natural ventilation of the confined space prior to initial entry and for the duration of the CSEP shall be provided. However, positive-pressure, forced mechanical ventilation may also be required. Before forced ventilation is initiated, information such as restricted areas within the confined space, voids, the nature of contaminants present, the size of the space, the type of work to be performed, and the number of entrants involved should be considered. The procedures listed below also apply.

- The confined space shall be ventilated before starting work and for the duration of the time that work is to be performed in the space.

- Ventilation air should not create an additional hazard resulting from recirculation of contaminants, improper arrangement of the inlet duct, or substitution of anything other than Grade D or fresh air.

- When air-moving equipment is used to provide ventilation, the equipment shall be tested before each shift and provided with an audible alarm to signal ventilation failure.

- Chemicals shall be removed from the vicinity of the air supply to prevent their introduction into the confined space by air-moving equipment or any other means.

- Vehicles shall not be left running near confined spaces or near air-moving equipment being used for confined space ventilation because vehicle exhaust can act as a source of carbon monoxide.

11.5 RESPIRATORY PROTECTION

Respiratory protection needed for confined space entry shall be determined by a technically qualified person such as a Tetra Tech PHSO based on site conditions, air monitoring results for the confined space, and the work activity to be performed. Air-purifying respirators with appropriate cartridges can be worn only if (1) testing indicates that the atmosphere is not oxygen deficient, (2) the contaminants are at concentrations below the protection factor of the respirator selected, and (3) an approved respiratory hazard assessment has been completed.

Self-contained breathing apparatuses (SCBA) or National Institute for Occupational Safety and Health-certified, positive-pressure, airline respirators equipped with a 5-minute emergency air supply (egress bottle) shall be used in any confined space when conditions have been determined to be immediately dangerous to life and health.

11.6 PRE-ENTRY BRIEFING

Immediately before entering a confined space, the authorized attendant and entrants shall again review all potential hazards and emergency procedures during a pre-entry briefing. The following topics shall be discussed:

- CSEP components
- Work to be completed and the time period the CSEP shall remain in effect
- Location of telephone and emergency numbers
- Atmospheric, physical, electrical, and miscellaneous hazards expected in the space
- Rescue provisions and procedures
- Reasons to evacuate the confined space.

11.7 COMMUNICATION

When visual monitoring of the entrants is not possible because of the layout of the confined space, the authorized attendant shall maintain voice contact as necessary to monitor entrant status and to alert entrants of the need to evacuate the space.

Attendants shall not enter the space to communicate with entrants. Passing of the head through the plane of the opening is not allowed. The attendant shall also know emergency telephone numbers. If a mobile telephone or radio is not available, other communication procedures must be arranged.

11.8 EVACUATION

Evacuation of the permit-required confined space will be initiated if any of the following conditions arise:

- Observation of a condition not allowed on the CSEP
- Entrant exhibits signs or symptoms of hazardous exposure
- Situation outside the space endangers entrants
- Uncontrolled hazard (such as fire or spill)
- Loss of power or ventilation
- Monitoring equipment malfunctions
- The authorized attendant must leave

11.9 RESCUE PROVISIONS

Provisions must be made prior to permit-required confined space entry for rescue equipment and procedures. If a worker becomes ill or injured, the attendant will contact the nearest qualified and equipped emergency response team (by the site-specific emergency telephone number in Table 2-1). The attendant may then attempt to retrieve the ill or injured employee by retrieval line until arrival of a rescue team. If rescue operations are provided by non-Tetra Tech personnel, the rescue personnel must be informed of the hazards they may confront during rescue.

Under no circumstances shall the attendant enter the confined space to attempt rescue unless trained and equipped for rescue operations and relieved of his or her attendant duties. The attendant must have appropriate rescue respiratory protection available for rescue teams. This equipment must include a positive pressure airline (with 5-minute escape bottle) or SCBA. Anyone using emergency respiratory equipment must have received training in its use. To facilitate non-entry rescue, non-entry retrieval systems or methods shall be used when an authorized entrant enters a permit space unless the retrieval equipment would increase the overall risk of entry or would not contribute to the rescue of the entrant. The authorized entrant shall be fitted with a full-body harness with a retrieval line attached at a suitable point so that if rescued, the employee easily fits through the entrance. Wristlets can be used when the use of a chest or full body harness would present a hazard and the use of wristlets is the safest and most effective alternative.

A mechanical retrieval device shall be available to retrieve personnel from a vertical-type permit required space more than 5 feet deep. The line will be at least 0.5-inch in diameter and tested for 2,000 pounds. Mechanical retrieval devices are not required for spaces less than 5 feet deep or during horizontal entries. A simple retrieval line on the entrant can be tied off outside the entrance for these spaces.

12.0 MATERIALS AND DOCUMENTATION

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

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

12.1 MATERIALS TO BE POSTED AT THE SITE

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

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

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

- **The OSHA Job Safety & Health Protection Poster (posted)** - This poster 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.

- **Site Clearance (maintained)** - This list is found within the training section of the HASP (Figure 8-1). This list identifies all 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 all phone communications points and in each site vehicle.

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

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

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

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

13.0 ACRONYMS / ABBREVIATIONS

CFR	Code of Federal Regulations
CIH	Certified Industrial Hygienist
CLEAN	Comprehensive Long-Term Environmental Action Navy
CSP	Certified Safety Professional
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
NRL	Naval Research Laboratory
N/A	Not Available
NIOSH	National Institute for Occupational Safety and Health
OSHA	Occupational Safety and Health Administration (U.S. Department of Labor)
PHSO	Project Health and Safety Officer
PPE	Personal Protective Equipment
SSO	Site Safety Officer
TBD	To be determined
PM	Project Manager
VOCs	Volatile Organic Compounds

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: _____

_____

_____

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 they can accompany an injured party to the hospital.

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

_____ _____ _____

Name (Print clearly) Signature Date

ATTACHMENT II

INCIDENT REPORT FORM

TETRA TECH, INC.
Safety Excellence

Report Date	Report Prepared By	Incident Report Number

INSTRUCTIONS:

All incidents (including those involving subcontractors under direct supervision of Tetra Tech personnel) must be documented on the IR Form.

Complete any additional parts to this form as indicated below for the type of incident selected.

TYPE OF INCIDENT (Check all that apply)	Additional Form(s) Required for this type of incident
Near Miss (No losses, but could have resulted in injury, illness, or damage)	☐ Complete IR Form Only
Injury or Illness	☐ Complete Form IR-A; Injury or Illness
Property or Equipment Damage, Fire, Spill or Release	☐ Complete Form IR-B; Damage, Fire, Spill or Release
Motor Vehicle	☐ Complete Form IR-C; Motor Vehicle

INFORMATION ABOUT THE INCIDENT

Description of Incident

_____

_____

_____

Date of Incident	Time of Incident
	_____ AM ☐ PM ☐ *OR* Cannot be determined ☐
Weather conditions at the time of the incident	**Was there adequate lighting?**
	_____ Yes ☐ No ☐

Location of Incident

_____ Was location of incident within the employer's work environment? Yes ☐ No ☐

Street Address	City, State, Zip Code and Country
Project Name	**Client:**
Tt Supervisor or Project Manager	**Was supervisor on the scene?**
	Yes ☐ No ☐

WITNESS INFORMATION (attach additional sheets if necessary)

Name	Company
Street Address	**City, State and Zip Code**

Telephone Number(s)

CORRECTIVE ACTIONS

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

_____

_____

_____

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

_____

_____

_____

ROOT CAUSE ANALYSIS LEVEL REQUIRED

Root Cause Analysis Level Required: Level - 1 ☐ Level - 2 ☐ None ☐

Root Cause Analysis Level Definitions

Level - 1	**Definition:** A Level 1 RCA is conducted by an individual(s) with experience or training in root cause analysis techniques and will conduct or direct documentation reviews, site investigation, witness and affected employee interviews, and identify corrective actions. Activating a Level 1 RCA and identifying RCA team members will be at the discretion of the Corporate Administration office. The following events may trigger a Level 1 RCA: ▪ Work related fatality ▪ Hospitalization of one or more employee where injuries result in total or partial permanent disability ▪ Property damage in excess of $75,000 ▪ When requested by senior management
Level - 2	**Definition:** A Level 2 RCA is self performed within the operating unit by supervisory personnel with assistance of the operating unit HSR. Level 2 RCA will utilize the 5 Why RCA methodology and document the findings on the tools provided. The following events will require a Level 2 RCA: ▪ OSHA recordable lost time incident ▪ Near miss incident that could have triggered a Level 1 RCA ▪ When requested by senior management

Complete the Root Cause Analysis Worksheet and Corrective Action form. Identify a corrective action(s) for each root cause identified within each area of inquiry.

NOTIFICATIONS

Title	Printed Name	Signature	Telephone Number	Date
Project Manager or Supervisor				
Site Safety Coordinator or Office H&S Representative				
Operating Unit H&S Representative				
Other: _____				

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

INSTRUCTIONS:

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

Incident Report Number: (From the IR Form)	

EMPLOYEE INFORMATION

Company Affiliation

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

Full Name	**Company (if not Tt employee)**
Street Address, City, State and Zip Code	**Address Type**
_____	Home address (for Tt employees) ☐
_____	Business address (for subcontractors) ☐

Telephone Numbers

Work: _____	Home: _____	Cell: _____

Occupation (regular job title)	**Department**
Was the individual performing regular job duties?	**Time individual began work**
Yes ☐ No ☐	_____ AM ☐ PM ☐ *OR* Cannot be determined ☐

Safety equipment

Provided? Yes ☐ No ☐

Used? Yes ☐ No ☐ If no, explain why

_____

_____

_____

Type(s) provided:

- ☐ Hard hat
- ☐ Protective clothing
- ☐ Gloves
- ☐ High visibility vest
- ☐ Eye protection
- ☐ Fall protection
- ☐ Safety shoes
- ☐ Machine guarding
- ☐ Respirator
- ☐ Other (list)

_____

NOTIFICATIONS

Name of Tt employee to whom the injury or illness was first reported	**Was H&S notified within one hour of injury or illness?**
	Yes ☐ No ☐
Date of report	**H&S Personnel Notified**
Time of report	**Time of Report**

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

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

INJURY / ILLNESS DETAILS

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

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

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

MEDICAL CARE PROVIDED

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

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

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

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

SIGNATURES

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

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

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

INSTRUCTIONS:

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

Incident Report Number: (From the IR Form)	

TYPE OF INCIDENT (Check all that apply)

Property Damage ☐ Equipment Damage ☐ Fire or Explosion ☐ Spill or Release ☐

INCIDENT DETAILS

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

_____

_____

_____

Response Actions Taken:

_____

_____

_____

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

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

Item:	**Extent of damage:**	**Estimated repair cost**

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

Substance	**Estimated quantity and duration**	**Specify Reportable Quantity (RQ)**
		_____ Exceeded? Yes ☐ No ☐ NA ☐

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

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

NOTIFICATIONS

Required notifications	**Name of person notified**	**By whom**	**Date / Time**
Client: _____ Yes ☐ No ☐			
Agency: _____ Yes ☐ No ☐			
Other: _____ Yes ☐ No ☐			

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

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

INSTRUCTIONS:

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

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 ☐ Female ☐	**Gender**	Male ☐ Female ☐
Was traffic citation issued to Tetra Tech driver? Yes ☐ No ☐		Was traffic citation issued to driver of other vehicle? Yes ☐ No ☐	
Citation #		**Citation #**	
Citation Description		**Citation Description**	

PASSENGERS IN VEHICLES (NON-INJURED)

List all non-injured passengers (excluding driver) in each vehicle.
Driver information is captured in the preceding section.
Information related to persons injured in the accident (non-Tt employees) is captured in the section below on this form.
Injured Tt employee information is captured on FORM IR-A

Vehicle Number 1 – Tetra Tech Vehicle		Vehicle Number 2 – Other Vehicle	
How many passengers (excluding driver) in the vehicle? ____		How many passengers (excluding driver) in the vehicle? ____	
Non-Injured Passenger Name and Address		**Non-Injured Passenger Name and Address**	
Non-Injured Passenger Name and Address		**Non-Injured Passenger Name and Address**	
Non-Injured Passenger Name and Address		**Non-Injured Passenger Name and Address**	

INJURIES TO NON-TETRATECH EMPLOYEES

Name of injured person 1				Address of injured person 1		
Age	**Gender**	**Car No.**	**Location in Car**	**Seat Belt Used?**	**Ejected from car?**	**Injury or Fatality?**
	Male ☐ Female ☐			Yes ☐ No ☐	Yes ☐ No ☐	Injured ☐ Died ☐
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 ☐ Female ☐			Yes ☐ No ☐	Yes ☐ No ☐	Injured ☐ Died ☐

OTHER PROPERTY DAMAGE

Describe damage to property other than motor vehicles	
Property Owner's Name	**Property Owner's Address**

COMPLETE AND SUBMIT DIAGRAM DEPICTING WHAT HAPPENED

ATTACHMENT III

SAFE WORK PERMITS

SAFE WORK PERMIT

DECONTAMINATION ACTIVITIES

NSA CRANE

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

SECTION I: General Job Scope

I. **Work limited to the following (description, area, equipment used):** Decontamination of sampling equipment will be decontaminated using buckets, brushes and spray bottles at the work site or designated location.

II. **Primary Hazards:** Lifting (strain/muscle pulls lifting heavy drilling equipment); flying projectiles propelled by the force of the pressure washer/stream cleaner; noise in excess of 85 dBA; burns/water lacerations; falling equipment hazards; slips, trips, and falls.

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**
Level D ☒ Level B ☐
Level C ☐ Level A ☐

Respiratory equipment required
Yes ☐ Specify on the reverse
No ☒

Modifications/Exceptions: None anticipated

VI.

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

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

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

VII. **Additional Safety Equipment/Procedures**

Hard-hat	☒ Yes	☐ No	Hearing Protection (Plugs/Muffs)	☐ Yes	☐ No
Safety Glasses	☒ Yes	☐ No	Safety belt/harness	☐ Yes	☒ No
Chemical/splash goggles	☐ Yes	☒ No	Radio/Cellular Phone	☐ Yes	☒ No
Splash Shield	☐ Yes	☐ No	Barricades	☐ Yes	☐ No
Splash suits/coveralls	☐ Yes	☐ No	Gloves (Type – Nitrile)	☒ Yes	☐ No
Impermeable apron	☐ Yes	☐ No	Work/rest regimen	☐ Yes	☒ No
Safety toe work shoes/boots	☒ Yes	☐ No	Chemical Resistant Boot Covers	☒ Yes	☐ No
High Visibility vest	☐ Yes	☒ No	Tape up/use insect repellent	☐ Yes	☐ No
First Aid Kit	☒ Yes	☐ No	Fire Extinguisher	☐ Yes	☐ No
Safety Shower/Eyewash	☐ Yes	☐ No	Other	☐ Yes	☐ No

Modifications/Exceptions: If contact with overspray is likely, Impermeable aprons may be used at SSO's discretion. Another option is to use rain suit or PE coated Tyvek. Hard hat, splash shield, hearing protection will be worn for pressure washer/steam cleaner operation. Gloves – Nitrile (surgeons style) or outer for deconning sampling (hand) tools, nitrile supported for steam cleaner/pressure washer operation. Overboots will be used when working in the temporary decon pad.

VIII. **Site Preparation**

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

IX. **Additional Permits required** (Hot work, confined space entry, excavation etc.) ☐ Yes ☒ No
If yes, SHSO 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 for this task. Construct pad for Decontamination. Use drying racks to secure heavy equipment to prevent items from falling during washing and drying. In addition, do NOT point the wand at other people or place it against any part of your body. Accidental compression of the trigger can cause water lacerations or burns. All hoses and fittings will be inspected to insure structural integrity prior to use. For pressure washers or steam cleaners in excess of 3,000 psi, a fan tip of 25° or greater will be used to control potential for water cuts or lacerations. A light coating of sand should be applied to the plastic liner should the surface becomes too slippery to prevent slips. Keep hoses gathered to prevent trips and falls. A site control boundary for this activity is 35-feet surrounding the point of operation. Follow MSDS for any decontamination solutions/solvents used.

Permit Issued by: _____ Permit Accepted by: _____

SAFE WORK PERMIT

MOBILIZATION/DEMOBILIZATION ACTIVITIES

NSA CRANE

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

SECTION I: General Job Scope

I. **Work limited to the following (description, area, equipment used):** Mobilization and demobilization activities. These activities include site reconnaissance/site characterization, site preparation including the layout of sampling locations, and identifying/isolating physical hazards; secure, construct, or equip IDW storage facilities to support the field activities.

II. **Primary Hazards:** Lifting, cuts and lacerations, pinches and compressions; flying projectiles; slips, trips, and falls; insect and animal bites. The direction provided in this HASP and this Safe Work Permit are directed at controlling these hazards. It should be noted that not every situation can be anticipated. Site personnel will therefore have to conduct on-site hazard assessments on a per task basis and employ controls as necessary.

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**
Level D ☒ Level B ☐
Level C ☐ Level A ☐

Respiratory equipment required
Yes ☐ See Reverse
No ☒

Modifications/Exceptions: None anticipated

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

Primary Route of Exposure/Hazard: None

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

VII. **Additional Safety Equipment/Procedures**

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

Modifications/Exceptions: If there are Flying projectiles– Safety glasses and/or splash shield (i.e., hammering, power tool operation); If you have to raise your voice to be heard by someone within 2-feet of you hearing protection is required (i.e., equipment/power tool operation); If overhead hazards or bump hazards or you are working near operating equipment hard hats will be employed. If you are working in or near traffic patterns then wear High Visibility Vests. Use insect repellant and tape up to protect against insects and insect bites. Wear snake chaps in high brush areas.

VIII. **Site Preparation**

	Yes	No	NA
Utility Locating and Excavation Clearance completed	☐	☐	☐
Vehicle and Foot Traffic Routes Established/Traffic Control Barricades/Signs in Place	☐	☐	☐
Physical Hazards Identified and Isolated	☐	☐	☐
Emergency Equipment Staged (Spill control, fire extinguishers, first aid kits, etc).	☐	☐	☐

IX. **Additional Permits required** (Hot work, confined space entry, excavation etc.) ☐ Yes ☒ No
If yes, SHSO 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 for this task. Caution should be exercised if working along the water. The potential for natural hazards including snakes, alligators may exist given the region. .

Permit Issued by: _____ Permit Accepted by: _____

SAFE WORK PERMIT

WASH RACK VAULT SAMPLING ACTIVITIES

NSA CRANE

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

I. Work limited to the following (description, area, equipment used): Sampling activities including soil and subsurface soil at SWMU 9 via concrete coring machine and hand augering. Tetra Tech personnel may only enter a space >4' in depth with a completely executed Confined Space Entry Permit.

II. Primary Hazards: Chemical contamination, transfer contamination, pinch/compression, lifting, slips, trips and falls, vehicular and foot traffic, ambient temperature extremes, insect/animal bites, stings, poisonous plants, and inclement weather

III. Field Crew: _____

IV. On-site Inspection conducted ☐ Yes ☐ No Initials of Inspector _____Tetra Tech

Equipment Inspection required ☐ Yes ☐ No Initials of Inspector _____Tetra Tech

V. Protective equipment required

Level D ☒ Level B ☐

Level C ☐ Level A ☐

Respiratory equipment required

Yes ☐ Specify on the reverse

No ☒

Modifications/Exceptions: _____

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

Pesticides	visible dust	sustained visible dust	use area wetting
Oxygen levels	multigas/O_2 meter	>19.5% < 23.5%	evacuate area
CO levels	multigas/O_2 meter	<25 ppm	evacuate area

Primary Route(s) of Exposure/Hazard: inhalation

(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	Hearing protection (Plugs/Muffs)	☐ Yes ☐ No
Safety glasses	☒ Yes ☐ No	Safety belt/harness	☐ Yes ☐ No
Chemical/splash goggles	☐ Yes ☐ No	Radio/cellular phone	☐ Yes ☐ No
Splash shield	☐ Yes ☒ No	Barricades	☐ Yes ☒ No
Splash suits/coveralls	☐ Yes ☐ No	Gloves (Type – surgical style)	☒ Yes ☐ No
Impermeable apron	☐ Yes ☒ No	Work/rest regimen	☐ Yes ☐ No
Safety toe work shoes/boots	☒ Yes ☐ No	Chemical resistant boot covers	☐ Yes ☒ No
High visibility vest	☐ Yes ☐ No	Tape up/use insect repellent	☐ Yes ☐ No
First aid kit	☐ Yes ☐ No	Fire Extinguisher	☐ Yes ☐ No
Safety shower/eyewash	☐ Yes ☐ No	Other	☐ Yes ☐ No

Modifications/Exceptions: Double layer gloves if necessary, Tyvek coveralls and disposable boot covers if surface contamination present or potential for soiling clothes. No hand to mouth activities and wash hands upon leaving work area and prior to hand to mouth activities. Hearing protection if ambient noise levels are high.

VIII. Site Preparation

	Yes	No	NA
Confined Space Entry Permit	☒	☐	☐
Utility Locating and Excavation Clearance completed	☐	☐	☐
Vehicle and Foot Traffic Routes Established/Traffic Control Barricades/Signs in Place	☐	☐	☐
Physical Hazards Identified and Isolated (Splash and containment barriers)	☐	☐	☐
Emergency Equipment Staged (Spill control, fire extinguishers, first aid kits, etc)	☐	☐	☐

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

If yes, SHSO to complete or contact Health Sciences, Pittsburgh Office (412)921-7090

X. Special instructions, precautions: NSA Crane Emergency Services is capable of providing rescue services but expects contractors to provide rescue for their own personnel only using them in extreme emergencies. Generator used to operate the concrete coring must be kept at a safe distance from the sampling location ensuring that the exhaust is pointed away from the Wash Rack vault.

Permit Issued by: _____ Permit Accepted by: _____

SAFE WORK PERMIT

DPT SAMPLING ACTIVITIES

NSA CRANE

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

I. Work limited to the following (description, area, equipment used): Sampling activities including soil and subsurface soil at SWMU 9 via DPT.

II. Primary Hazards: Chemical contamination, transfer contamination, pinch/compression, lifting, slips, trips and falls, vehicular and foot traffic, ambient temperature extremes, insect/animal bites, stings, poisonous plants, and inclement weather

III. Field Crew: _____

IV. On-site Inspection conducted ☐ Yes ☐ No Initials of Inspector _____Tetra Tech

Equipment Inspection required ☐ Yes ☐ No Initials of Inspector _____Tetra Tech

V. Protective equipment required

Level D ☒ Level B ☐

Level C ☐ Level A ☐

Respiratory equipment required

Yes ☐ Specify on the reverse

No ☒

Modifications/Exceptions: _____

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

Chemicals of Concern	Hazard Monitoring	Action Level(s)	Response Measures
Pesticides	visible dust	sustained visible dust	use area wetting

Primary Route(s) of Exposure/Hazard: inhalation

(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	Hearing protection (Plugs/Muffs)	☒ Yes ☐ No
Safety glasses	☒ Yes ☐ No	Safety belt/harness	☐ Yes ☐ No
Chemical/splash goggles	☐ Yes ☐ No	Radio/cellular phone	☐ Yes ☐ No
Splash shield	☐ Yes ☒ No	Barricades	☐ Yes ☒ No
Splash suits/coveralls	☐ Yes ☐ No	Gloves (Type – surgical style)	☒ Yes ☐ No
Impermeable apron	☐ Yes ☒ No	Work/rest regimen	☐ Yes ☐ No
Safety toe work shoes/boots	☒ Yes ☐ No	Chemical resistant boot covers	☐ Yes ☒ No
High visibility vest	☐ Yes ☐ No	Tape up/use insect repellent	☐ Yes ☐ No
First aid kit	☐ Yes ☐ No	Fire Extinguisher	☐ Yes ☐ No
Safety shower/eyewash	☐ Yes ☐ No	Other	☐ Yes ☐ No

Modifications/Exceptions: Double layer gloves if necessary, Tyvek coveralls and disposable boot covers if surface contamination present or potential for soiling clothes. No hand to mouth activities and wash hands upon leaving work area and prior to hand to mouth activities. Hearing protection if ambient noise levels are high.

VIII. Site Preparation

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

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

If yes, SHSO to complete or contact Health Sciences, Pittsburgh Office (412)921-7090

X. Special instructions, precautions: A steam line is downhill from this site. The slope, soil condition and weather should be taken in consideration prior to positioning the DPT vehicle. Make sure that the vehicle is level and blocked properly to maintain the vehicle stability.

Permit Issued by: _____ Permit Accepted by: _____

SAFE WORK PERMIT

IDW MANAGEMENT

NSA CRANE

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 soil cuttings, purge and decontamination wash waters.

II. **Primary Hazards:** Potential hazards associated with this task are primarily physical in nature including lifting, pinches and compressions; flying projectiles; slips, trips, and falls.

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**
Level D ☒ Level B ☐
Level C ☐ Level A ☐

Respiratory equipment required
Yes ☐ See Reverse
No ☒

Modifications/Exceptions: None anticipated

VI. Chemicals of Concern	Hazard Monitoring	Action Level(s)	Response Measures
Pesticides	visible dust	significantly sustained amounts of visible dust	suspend activity until dust subsides or use area wetting techniques

Primary Route of Exposure/Hazard: None

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

VII. **Additional Safety Equipment/Procedures**

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

Modifications/Exceptions: If you are using pneumatic/electric power to open drums – Safety glasses are required; if power equipment is employed to move drums or you are working near operating equipment hard hats will be employed. Use visual observation on all equipment and/or areas which have been cleaned and dried to ensure they have been properly cleaned of potentially contaminated media (water, dust, soils, etc.). No hand to mouth activities and wash hands upon leaving work area and prior to hand to mouth activities.

VIII. **Site Preparation**

	Yes	No	NA
Utility Locating and Excavation Clearance completed	☐	☐	☒
Vehicle and Foot Traffic Routes Established/Traffic Control Barricades/Signs in Place	☐	☐	☐
Physical Hazards Identified and Isolated	☐	☐	☐
Emergency Equipment Staged (Spill control, fire extinguishers, first aid kits, etc)	☐	☐	☐

IX. **Additional Permits required** (Hot work, confined space entry, excavation etc.). ☐ Yes ☒ No
If yes, SHSO 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

Permit Issued by: _____ Permit Accepted by: _____

ATTACHMENT IV

EQUIPMENT INSPECTION CHECKLIST

Equipment Inspection Checklist for DPT Rigs

Company:_____ **Unit/Serial No#:**_____

Inspection Date: ____/____/____ **Time:**____:____ **Equipment Type:**_____

Project Name:_____ **Project No#:**_____

Yes	No	NA	Requirement	Comments
			Emergency Stop Devices	
☐	☐	☐	• Emergency Stop Devices (At points of operation)	
☐	☐	☐	• Have all emergency shut offs identified been communicated to the field crew?	
☐	☐	☐	• Has a person been designated as the Emergency Stop Device Operator?	
			Highway Use	
☐	☐	☐	• Cab, mirrors, safety glass?	
☐	☐	☐	• Turn signals, lights, brake lights, etc. (front/rear) for equipment approved for highway use?	
☐	☐	☐	• Seat Belts?	
☐	☐	☐	• Is the equipment equipped with audible back-up alarms and back-up lights?	
☐	☐	☐	• Horn and gauges	
☐	☐	☐	• Brake condition (dynamic, park, etc.)	
☐	☐	☐	• Tires (Tread) or tracks	
☐	☐	☐	• Windshield wipers	
☐	☐	☐	• Exhaust system	
☐	☐	☐	• Steering (standard and emergency)	
☐	☐	☐	• Wheel Chocks?	
☐	☐	☐	• Are tools and material secured to prevent movement during transport? Especially those within the cab?	
☐	☐	☐	• Are there flammables or solvents or other prohibited substances stored within the cab?	
☐	☐	☐	• Are tools or debris in the cab that may adversely influence operation of the vehicle (in and around brakes, clutch, gas pedals)	

Equipment Inspection Checklist for DPT Rigs
Unit/Serial No#:_____
Inspection Date: ____/____/____

Yes	No	NA	Requirement	Comments
			Fluid Levels:	
☐	☐	☐	• Engine oil	
☐	☐	☐	• Transmission fluid	
☐	☐	☐	• Brake fluid	
☐	☐	☐	• Cooling system fluid	
☐	☐	☐	• Hoses and belts	
☐	☐	☐	• Hydraulic oil	
			High Pressure Hydraulic Lines	
☐	☐	☐	• Obvious damage	
☐	☐	☐	• Operator protected from accidental release	
☐	☐	☐	• Coupling devices, connectors, retention cables/pins are in good condition and in place	
			Mast Condition	
☐	☐	☐	• Structural components/tubing	
☐	☐	☐	• Connection points	
☐	☐	☐	• Pins	
☐	☐	☐	• Welds	
☐	☐	☐	• Outriggers	
☐	☐	☐	• Operational	
☐	☐	☐	• Plumb (when raised)	
			Safety Guards –	
☐	☐	☐	• Around rotating apparatus (belts, pulleys, sprockets, spindles, drums, flywheels, chains) all points of operations protected from accidental contact?	
☐	☐	☐	• Hot pipes and surfaces exposed to accidental contact?	
☐	☐	☐	• High pressure lines	
☐	☐	☐	• Nip/pinch points	
			Operator Qualifications	
☐	☐	☐	• Does the operator have proper licensing where applicable, (e.g., CDL)?	
☐	☐	☐	• Does the operator, understand the equipment's operating instructions?	
☐	☐	☐	• Is the operator experienced with this equipment?	
☐	☐	☐	• Is the operator 21 years of age or more?	

Equipment Inspection Checklist for DPT Rigs
Unit/Serial No#:_____
Inspection Date: ____/____/____

Yes	No	NA	Requirement	Comments
			PPE Required for Drill Rig Exclusion Zone	
☐	☐	☐	• Hardhat	
☐	☐	☐	• Safety glasses	
☐	☐	☐	• Work gloves	
☐	☐	☐	• Chemical resistant gloves_____	
☐	☐	☐	• Steel toed Work Boots	
☐	☐	☐	• Chemical resistant Boot Covers	
☐	☐	☐	• Apron	
☐	☐	☐	• Coveralls Tyvek, Saranex, cotton)_____	
			Other Hazards	
☐	☐	☐	• Excessive Noise Levels? _____dBA	
☐	☐	☐	• Chemical hazards (Drilling supplies - Sand, bentonite, grout, fuel, etc.)	
☐	☐	☐	- MSDSs available?	
☐	☐	☐	• Will On-site fueling occur	
☐	☐	☐	- Safety cans available?	
☐	☐	☐	- Fire extinguisher (Type/Rating -_____ _)	

Approved for Use ☐ Yes ☐ No ☐ See Comments

_____ _____
Site Health and Safety Officer Operator

ATTACHMENT V

OHSA POSTER

Job Safety and Health

It's the law!

OSHA

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

EMPLOYEES:

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

EMPLOYERS:

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

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

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

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

OSHA 3165-12-06R