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HEALTH AND SAFETY PLAN TO SUPPORT THE UTILITY TRENCH INSTALLATION AT
TRUMAN ANNEX WATER TOWER SITE WITH TRANSMITTAL LETTER NAS KEY WEST FL
6/28/2005
TETRA TECH NUS



TETRA TECH NUS, INC.

AIK-05-0161

June 28, 2005

Project Number HK N0639

via FedEx

Commander
Department of the Navy
SOUTHDIV NAVFACENGCOM
ATTN: Linda Martin (Code OPT1)
P.O. Box 190010
North Charleston, South Carolina 29419-9010

Reference: CLEAN Contract No. N62467-94-D-0888
Contract Task Order No. 0349

Subject: HASP for Sampling to Support the Utility Trench Installation at the Truman Annex Water Tower Site, Rev. 0, Naval Air Station, Key West, Florida

Dear Ms. Martin:

I have enclosed a CD containing the PDF file for the HASP for Sampling to Support the Utility Trench Installation at the Truman Annex Water Tower Site, Rev. 0, Naval Air Station, Key West, Florida. The file is being distributed to some of the members of the NAS Key West Partnering Team via U.S. mail for their convenience and to meet TtNUS's contractual obligation under CTO 0349. I am not expecting to receive any comments on this document.

Please call me at (803) 649-7963, extension 345, if you have any questions regarding the enclosed document.

Sincerely,

C. M. Bryan
Project Manager

CMB:spc

c: Ms. Debra M. Humbert (Cover Letter Only)
Ms. T. Vaught, FDEP
Mr. R. Courtright, NAS Key West

Mr. M. Perry/File
Files 0639-4.2

**HEALTH AND SAFETY PLAN
FOR
SAMPLING TO SUPPORT
THE UTILITY TRENCH INSTALLATION
AT THE TRUMAN ANNEX WATER TOWER SITE**

**NAVAL AIR STATION KEY WEST
KEY WEST, FLORIDA**



**SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND**

**Contract No. N62467-94-D-0888
Contract Task Order 0349**

JUNE 2005

**HEALTH AND SAFETY PLAN
FOR
SAMPLING TO SUPPORT UTILITY
TRENCH INSTALLATION
AT THE TRUMAN ANNEX WATER TOWER SITE**

**NAVAL AIR STATION KEY WEST
KEY WEST, FLORIDA**

Submitted to:

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Naval Facilities Engineering Command
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Submitted by:

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**CONTRACT NO. N62467-94-D-0888
CONTRACT TASK ORDER 0349**

June 2005

PREPARED UNDER THE SUPERVISION OF:

APPROVED FOR SUBMITTAL BY:



**CHARLES BRYAN
TASK ORDER MANAGER
TETRA TECH NUS
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PITTSBURGH, PENNSYLVANIA**

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1.0 INTRODUCTION

This Health and Safety Plan (HASP) has been developed to provide practices and procedures for Tetra Tech NUS, Inc. (TtNUS) personnel engaged in support of the utility trench installation at the Truman Annex Water Tower site at the Naval Air Station (NAS) Key West, Florida. This work is authorized under the Comprehensive Long - Term Environmental Action Navy (CLEAN) contract, administered through the U.S. Navy Southern Division Naval Facilities Engineering Command, as defined under Contract No. N62467-94-D-0888; Contract Task Order Number 0349. This HASP must be used in conjunction with the TtNUS Health and Safety Guidance Manual. Both of these documents must be present at the site during the performance of site activities. The Guidance Manual provides detailed information pertaining to the HASP as well as applicable TtNUS Standard Operating Procedures (SOPs). This HASP and the contents of the Guidance Manual were developed to comply with the requirements stipulated in 29 CFR 1910.120 (OSHA's Hazardous Waste Operations and Emergency Response Standard).

This HASP 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 sites of interest. The HASP will be modified if new information becomes available. Changes to the HASP will be made with the approval of the TtNUS Project Health and Safety Officer (PHSO) and the TtNUS Health and Safety Manager (HSM). Requests for modifications to the HASP will be directed to the PHSO, who will determine if the changes are necessary. The PHSO will notify the Task Order Manager (TOM), who will notify affected personnel of changes.

1.1 KEY PROJECT PERSONNEL AND ORGANIZATION

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

- The TtNUS TOM is responsible for the overall direction of health and safety for this project.
- The PHSO is responsible for developing this HASP in accordance with applicable OSHA regulations. Specific responsibilities include:
 - Providing information regarding site contaminants and physical hazards associated with the site.
 - Establishing air monitoring and decontamination procedures.
 - Assigning personal protective equipment based on task and potential hazards.

- Determining emergency response procedures and emergency contacts.
 - Stipulating training requirements and reviewing appropriate training and medical surveillance certificates.
 - Providing standard work practices to minimize potential injuries and exposures associated with hazardous waste work.
 - Modifying this HASP, as it becomes necessary.
- The TtNUS Field Operations Leader (FOL) is responsible for implementation of the HASP with the assistance of an appointed SSO. The FOL manages field activities, executes the work plan, and enforces safety procedures as applicable to the work plan.
 - The SSO supports site activities by advising the FOL on aspects of health and safety on site. These duties may include:
 - Coordinating health and safety activities with the FOL.
 - Selecting, inspecting, and maintaining personal protective equipment.
 - Establishing work zones and control points in areas of operation.
 - Implementing air monitoring program for onsite activities.
 - Verifying training and medical clearance of onsite personnel status in relation to site activities.
 - Implementing Hazard Communication, Respiratory Protection Programs, and other associated health and safety programs as they may apply to site activities.
 - Coordinating emergency services.
 - Providing site-specific training for onsite personnel.
 - Investigating accidents and injuries (see Attachment I - Illness/Injury Procedure and Report Form)
 - Providing input to the PHSO regarding the need to modify, this HASP, or applicable health and safety associated documents as per site-specific requirements.
 - Compliance with the requirements stipulated in this HASP is monitored by the SSO and coordinated through the TtNUS CLEAN HSM.

Note: In some cases one person may be designated responsibilities for more than one position. For example, at NAS Key West, the FOL may also be responsible for SSO duties. This action will be performed only as credentials or experience permits.

1.2 SITE INFORMATION AND PERSONNEL ASSIGNMENTS

Site Name: Naval Air Station Key West
Key West, Florida

Client Contact: Mr. Robert Courtright
Phone Number: (305) 293-2881

Scheduled Activities: TtNUS will conduct soil sampling to support the utility trench installation at the Truman Annex Water Tower Site. See Section 3.0 and 4.0 for details concerning details site background and scope of work.

Dates of scheduled activities: June 2005

Project Team:

TtNUS Management Personnel:

Charles Bryan
Gary Braganza, PG
TBD
Matthew M. Soltis, CIH, CSP
James K. Laffey

Discipline/Tasks Assigned:

Task Order Manager (TOM)
Field Operations Leader (FOL)
Site Safety Officer (SSO)
CLEAN Health and Safety Manager
Project Health and Safety Officer (PHSO)

Other Potential TtNUS Project Personnel:

Hazard Assessment (for purpose of 29 CFR 1910.132) for HASP preparation has been conducted 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. Site activities will be coordinated with the client contact, Robert Courtright. In the event of an emergency which cannot be mitigated using onsite resources, personnel will evacuate to a safe place of refuge and the appropriate emergency response agencies will be notified. It has been determined that the majority of potential emergency situations would be better supported by outside emergency responders. Based on this determination, TtNUS personnel will not provide emergency response support beyond the capabilities of onsite response. Workers who are ill or who have suffered a non-serious injury may be transported by site personnel to nearby medical facilities, provided that such transport does not aggravate or further endanger the welfare of the injured/ill person. The emergency response agencies listed in this plan are capable of providing the most effective response, and as such, will be designated as the primary responders. These agencies are located within a reasonable distance from the area of site operations, which ensures adequate emergency response time. NAS Key West contact Robert Courtright will be notified anytime outside response agencies are contacted. This Emergency Action Plan conforms to the requirements of 29 CFR 1910.38(a), as allowed in 29 CFR 1910.120(I)(1)(ii).

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

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

2.2 EMERGENCY PLANNING

Through the initial hazard/risk assessment effort, emergencies resulting from chemical, physical, or fire hazards are considered to be unlikely to be encountered during site activities. Nonetheless, to minimize and eliminate the potential for any emergency situations, 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 TtNUS emergency action activities are compatible with existing emergency response procedures. Base Fire Protection and

Emergency Services will be notified of scheduled events and activities. This is most imperative in situations where their services may be required.

- Establishing and maintaining information at the project staging area (Support Zone) for easy access in the event of an emergency. This information will include the following:
 - Chemical Inventory (of chemicals used onsite), with Material Safety Data Sheets.
 - Onsite personnel medical records (Medical Data Sheets).
 - A log book identifying personnel onsite each day.
 - Hospital route maps with directions (these should also be placed in each site vehicle).
 - Emergency Notification - phone numbers.

The TtNUS FOL will be responsible for the following tasks:

- Identifying a chain of command for emergency action.
- Educating site workers to the hazards and control measures associated with planned activities at the site, and providing early recognition and prevention, where possible.
- Periodically performing practice drills to ensure site workers are familiar with incidental response measures.
- Providing the necessary equipment to safely accomplish identified tasks.

2.3 EMERGENCY RECOGNITION AND PREVENTION

2.3.1 Recognition

Emergency situations that may be encountered during site activities will generally be recognized by visual observation. To adequately recognize chemical exposures, site personnel must have a clear knowledge of signs and symptoms of exposure associated with site contaminants. This information is provided in Table 6-1. Tasks to be performed at the site, potential hazards associated with those tasks and the recommended control methods are discussed in detail in Sections 5.0 and 6.0. Additionally, early recognition of hazards will be supported by daily site surveys to eliminate any situation predisposed to an emergency. The FOL and/or the SSO will be responsible for performing surveys of work areas prior to initiating site operations and periodically while operations are being conducted. Survey findings will be documented by the FOL and/or the SSO in the Site Health and Safety logbook, however, site personnel

will be responsible for reporting hazardous situations. Where potential hazards exist, TtNUS 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 TtNUS to instigate necessary control measures. However, if the FOL and the SSO determine that control measures are not sufficient to eliminate the hazard, TtNUS will withdraw from the site and notify the appropriate response agencies listed in Table 2-1.

2.3.2 Prevention

TtNUS personnel will minimize the potential for emergencies by following the Health and Safety Guidance Manual 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, site 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 TtNUS 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 TtNUS 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 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 not be performed 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.

TtNUS personnel will perform removal of personnel from emergency situations and may provide initial medical support for injury/illnesses requiring only first-aid level support. Medical attention above that level will require assistance and support from the designated emergency response agencies. Attachment I provides the procedure to follow when reporting an injury/illness, and the form to be used for this purpose. **If the emergency involves personnel exposures to chemicals, follow the steps provided in Figure 2-1.**

2.6 EMERGENCY CONTACTS

Prior to initiating field activities, site 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.

TABLE 2-1

**EMERGENCY REFERENCES
NAVAL AIR STATION
KEY WEST, FLORIDA**

AGENCY	TELEPHONE
Key West Police/Rescue Services	(305) 293-2971
NAS Key West Point of Contact, Robert Courtright	(305) 293-2881
Base Police	(305) 293-2114
Base Fire Department Boca Chica	(305) 293-3333
Hospital: Lower Florida Keys Health System	(305) 294-5531
Base Officer of the Day (OOD)	(305) 293-2971
Poison Control Center	(800) 222-1222
Chemtrec	(800) 424-9300
National Response Center	(800) 424-8802
Task Order Manager Chuck Bryan	(803) 649-7963 x345
Field Operations Leader	
Site Safety Officer	
Health and Safety Manager, Matthew M. Soltis, CIH, CSP	(412) 921-8912
Project Health and Safety Officer, James K. Laffey	(412) 921-8678

2.7 EMERGENCY ROUTE TO HOSPITAL

The closest hospital to NAS Key West is Lower Florida Keys Health System. Directions are as follows:

From Boca Chica, exit NAS Key West and get on U.S. 1 South. Go west across the bridge; pass Texaco and turn right on Junior College Road. Golf course will be on left; and on right, you will see the hospital sign. Follow road to the Hospital, which will be on the left. The hospital is located at 5900 College Road on Stock Island.

**Figure 2-1
Route to Hospital**



2.8 EMERGENCY ALERTING AND ACTION/RESPONSE PROCEDURES

TtNUS personnel will be working in close proximity to each other at NAS Key West. 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 warranting evacuation occurs, the following procedures are to be initiated:

- Initiate the evacuation via hand signals, voice commands, line of site communication, or radios/cellular communication.
- Report to the designated refuge point.
- 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 pertinent emergency contacts listed in Table 2-1 and report the incident. Give the emergency operator the location of the emergency, the type of emergency, the number of injured, and a brief description of the incident. Stay on the phone and follow the instructions given by the operator. The operator will then notify and dispatch the proper emergency response agencies.

2.9 PPE AND EMERGENCY EQUIPMENT

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

Navy contact Robert Courtright must be informed as soon as possible of any incident or accident that requires medical attention.

Information regarding allergies to medications or other special medical conditions will be provided to medical services personnel through the Medical Data Sheets filed onsite (see Attachment II of this HASP). If an exposure to hazardous materials has occurred, provide hazard information from Table 6-1 to medical service personnel.

Figure 2-2 Emergency Response Protocol

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

In the event of a personnel injury or accident:

- Rescue, when necessary, employing proper equipment and methods.
- Give attention to emergency health problems -- breathing, cardiac function, bleeding, and shock.
- Transfer the victim to the medical facility designated in this HASP by suitable and appropriate conveyance (i.e. ambulance for serious events)
- Obtain as much exposure history as possible (a Potential Exposure report is attached).
- If the injured person is a Tetra Tech NUS employee, call the medical facility and advise them that the patient(s) is/are being sent and that they can anticipate a call from the WorkCare physician. WorkCare will contact the medical facility and request specific testing which may be appropriate. WorkCare physicians will monitor the care of the victim. Site officers and personnel should not attempt to get this information, as this activity leads to confusion and misunderstanding.
- Call WorkCare at 1-800-455-6155 and enter Extension 109, or follow the voice prompt after hours and on weekends and be prepared to provide:
 - Any known information about the nature of the injury.
 - As much of the exposure history as was feasible to determine in the time allowed.
 - Name and phone number of the medical facility to which the victim(s) has/have been taken.
 - Name(s) of the involved Tetra Tech NUS, Inc. employee(s).
 - Name and phone number of an informed site officer who will be responsible for further investigations.
 - Fax appropriate information to WorkCare at (714) 456-2154.
- Contact Corporate Health and Safety Department (Matt Soltis) and Human Resources Manager (Marilyn Duffy) at 1-800-245-2730.

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

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

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

3.0 SITE BACKGROUND

3.1 SITE HISTORY

NAS Key West is in southern Monroe County, Florida. The U.S. Navy manages 6,323 acres of land divided into twenty separate tracts in the lower Florida Keys, concentrated around Key West and Boca Chica Key. The Naval Station at Key West was disestablished in 1974, resulting in the relocation of several units. At present, NAS Key West is proceeding with realignment of aviation operations, a research laboratory, communications intelligence, counternarcotics air surveillance operations, a weather service, and several other activities on Key West. In addition to the Naval activities and units, other DOD and Federal agencies at NAS Key West include the U.S. Air Force, U.S. Army, and U.S. Coast Guard.

Several installations in various parts of the lower Florida Keys comprise the Naval Complex at Key West. Most of these are on Key West and Boca Chica Key. Key West, one of the two westernmost major islands of the Florida Keys, is approximately 150 miles southwest of Miami and 90 miles north of Havana, Cuba. Key West connects to the mainland by the Overseas Highway (U.S. Highway No. 1). The topography at the NAS Key West is generally flat.

3.2 PROJECT SITE DESCRIPTION

3.2.1 Truman Annex Water Tower Site

The DRMO Waste Storage Area at Truman Annex was used primarily to store metal debris, including motors, vehicles, boats, refugee debris, and fuel trucks. Some hazardous materials were also stored at the DRMO Waste Storage Area. The DRMO Waste Storage Area was remediated in 1999. Approximately 16,000 tons of soil were removed from the area and replaced with clean backfill. In 2003, the area was transferred from Navy ownership to the City of Key West. A water tower remained on the property. The water tower and a 170-foot by 172-foot area immediately surrounding the tower was retained by NAS Key West. In 2003, the water tower was removed.

4.0 SCOPE OF WORK

This section describes the project tasks that will be performed as part of the sampling at the Truman Annex Water Tower Site at NAS Key West. Each site task has been evaluated and the associated hazards and recommended control measures are listed in Table 5-1 of this HASP. If new tasks are to be performed at the site, Table 5-1 and this section will be modified accordingly. Specific tasks to be conducted include, but are not necessarily limited to, the following:

- Mobilization and demobilization
- Soil sampling using hand augering techniques
- Decontamination of sampling equipment
- Surveying of sampling locations using global positioning system (GPS)

The above listing represents a summarization of the tasks as they apply to the scope and application of this HASP. For more detailed description of the associated tasks refer to the Work Plan. If additional tasks are determined to be necessary, this HASP will be amended and a hazard evaluation will be performed for each additional task to be conducted at the site.

5.0 TASKS/HAZARDS/ASSOCIATED CONTROL MEASURES

Table 5-1 of this section serves as the primary portion of this HASP and identifies the tasks that are to be performed as part of the scope of work. This table may be modified if new or additional tasks become necessary. For each of the planned tasks, Table 5-1 specifies the anticipated hazards, recommended control measures, air monitoring recommendations, required Personal Protective Equipment (PPE), and decontamination measures.

Through using this table, site personnel can determine which hazards are associated with each task and at each site, and what associated control measures are necessary to minimize potential exposure or injuries related to those hazards. The table also assists field team members in determining which PPE and decontamination procedures to use as well as proper air monitoring techniques.

As discussed earlier, a Health and Safety Guidance Manual accompanies this table and HASP. The manual has been designed to further explain supporting programs and elements for other site-specific aspects as required by 29 CFR 1910.120. The Guidance Manual should be referenced for additional information regarding air monitoring instrumentation, decontamination activities, emergency response, hazard assessments, hazard communication and hearing conservation programs, medical surveillance, PPE, respiratory protection, site control measures, standard work practices, and training requirements. Many of Tetra Tech NUS' SOPs are also provided in the Guidance Manual.

Safe Work Permits (See Section 9.2) will use elements defined in Table 5-1 as its primary reference. The FOL and/or the SSO completing the Safe Work Permit (SWP) will be required to add certain task/site-specific information. The SWPs are to be used by the SSO as the outline for task-specific tailgate safety briefings, which are to be conducted prior to the initiation of each task, and at the beginning of each work shift.

5.1 GENERAL SAFE WORK PRACTICES

In addition to the task-specific work practices identified on Table 5-1, the following general safe work practices are to be followed when conducting work on-site. These safe work practices address a pattern of general precautions and measures for reducing risks associated with site operations.

- Eating, drinking, chewing gum or tobacco, taking medication, or smoking is prohibited in contaminated or potentially contaminated areas or where the possibility for the transfer of contamination exists.

- Wash hands and face thoroughly upon leaving a contaminated or suspected contaminated area. A thorough shower and washing must be conducted as soon as possible if excessive skin contamination occurs.
- Avoid contact with potentially contaminated substances. Avoid puddles, pools, mud, or other such areas. Avoid, whenever possible, kneeling on the ground or leaning or sitting on equipment. Keep monitoring equipment away from potentially contaminated surfaces.
- Take note of the location of the nearest telephone and emergency telephone numbers. See Section 2.0, Table 2-1.
- Attend briefings on anticipated hazards, equipment requirements, safe work permits, emergency procedures, and communication methods before going on site.
- Plan and mark entrance, exit, and emergency escape routes. See Section 2.0.
- 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 injuries, illnesses, and unsafe conditions, practices, and equipment to the Site Safety Officer (SSO).
- Observe coworkers 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.

**TABLE 5-1
TASKS/HAZARDS/CONTROL MEASURES
NAVAL AIR STATION, KEY WEST, FLORIDA**

Tasks/Operation/ Locations	Anticipated Hazards	Recommended Control Measures	Hazard Monitoring	Personal Protective Equipment <i>Italicize text represents optional equipment to be worn when conditions require.</i>	Decontamination Procedures
Mobilization/ Demobilization	<p>Chemical hazards</p> <p>Site contaminants are not anticipated to be encountered during this activity. However, chemical hazards may be associated with chemicals that are brought on-site. Site personnel must maintain chemical inventories and manufacturer material safety data sheets (MSDS) and follow the TtNUS Hazard Communication Program in the Guidance Manual (Section 5.0).</p> <p>Physical hazards:</p> <ol style="list-style-type: none"> 1) Lifting (muscle strains and pulls) 2) Slip, trips, and falls 3) Moving machinery 4) (Insect/animal bites and stings) 5) Vehicular and foot traffic <p>Natural hazards:</p> <ol style="list-style-type: none"> 6) Inclement weather 	<ol style="list-style-type: none"> 1) Use machinery or multiple personnel for heavy lifts. Use proper lifting techniques. 2) Preview work locations for unstable/uneven terrain. Barricade all excavations from access closer than two feet from the edge. 3) All equipment will be <ul style="list-style-type: none"> - Inspected in accordance with OSHA, and manufacturers design. (See Attachment VI of this HASP or Section 10.0 of the TtNUS Health and Safety Guidance Manual). - Operated by qualified operators, and knowledgeable ground crew. 4) Avoid nesting areas, use commercially available repellents. Report potential hazards to the SSO. 5) Traffic and equipment considerations are to include the following: <ul style="list-style-type: none"> - Establish safe zones of approach (i.e. Boom + 3 feet). - Secure all loose articles to avoid possible entanglement. - All equipment shall be equipped with movement warning systems. - Employ safety belts and follow the site traffic rules. <p>Traffic patterns will be required supporting onsite activities. However, regulated patterns in and about the work zones and support thereof will be established to safely control moving equipment, vehicles, and pedestrians around the area of operation.</p>	Not required	<p>Level D - (Minimum Requirements)</p> <ul style="list-style-type: none"> - Standard field attire (Sleeved shirt; long pants) - Steel toe safety shoes - Safety glasses - Hardhat (when overhead hazards exists, or identified as a operation requirement) <p>Note: The Safe Work Permit(s) for this task (see Attachment III) will be issued at the beginning of each day to address the tasks planned for that day. As part of this task, additional PPE may be assigned to reflect site-specific conditions or special considerations or conditions associated with any identified task.</p>	Not required
<p>Soil sampling via hand augering</p> <p>Field analysis will include sampling for PCBs using immunoassay kits. A limited number of samples will be shipped to a laboratory for analysis.</p>	<p>Chemical hazards</p> <p>1a) Based on the analytical data from previous site investigations, the primary contaminants of concern are hexachlorobutadiene, hexachloroethane, hexachlorocyclopentadiene and 1,2,4-trichlorobenzene which were detected at concentrations that are unlikely to pose an occupational exposure concern to site workers performing soil sampling activities.</p> <p>1b) Immunoassay chemicals/reagents</p> <p>Further information on this contaminant is presented in Table 6-1.</p> <p>2) Transfer of contamination into clean areas</p> <p>Physical hazards:</p> <ol style="list-style-type: none"> 3) Lifting (muscle strains and pulls) 4) Slip, trips, and falls 5) Ambient temperature extremes (heat stress) <p>Natural hazards:</p> <ol style="list-style-type: none"> 6) Insect/animal bites and stings 7) Inclement weather 	<p>1a) Use PPE and implement safe work practices (avoid contact with potentially contaminated, wash hands, minimize spread of potentially contaminated soil, etc). and monitor source areas to detect the presence of VOCs.</p> <p>1b) Use safe work practices, PPE, and decontamination/personal hygiene practices to minimize potential exposures via incidental ingestion and skin contact.</p> <p>2) Decontaminate all equipment and supplies between sampling locations and prior to leaving the site.</p> <p>3) Use machinery or multiple personnel for heavy lifts. Use proper lifting techniques.</p> <p>4) Preview work locations for unstable/uneven terrain.</p> <p>5) Drink plenty of fluids and seek shelter (shade or air conditioned areas) for breaks. If necessary, evaluate workers for heat stress and follow ACGIH guidelines for work/rest regimens.</p> <p>6) Avoid nesting areas, use commercially available repellents. Report potential hazards to the SSO.</p> <p>7) Suspend or terminate operations until directed otherwise by SSO.</p>	<p>It is not anticipated that potential contaminant concentrations at IDW management locations will present an inhalation hazard.</p> <p>A direct reading Photoionization Detector (PID), with a 11.7 eV lamp, will be used to screen samples and to detect the presence of any potential VOCs. Source monitoring of the borehole will be conducted at each sample interval/auger bucket depth. Elevated readings at a source will require the following actions:</p> <ul style="list-style-type: none"> - Monitor the breathing zone of at-risk employees. Any sustained readings (greater than 1 minute in duration) above background in the breathing zone of the at-risk employees requires site activities to be suspended and site personnel to report to an unaffected area. - Work may only resume if airborne readings in worker breathing zone return to below background levels. If elevated readings in worker breathing zone persist, the PHSO and HSM will be contacted to determine necessary actions and levels of protection. 	<p>Level D protection will be utilized for the initiation of all sampling activities.</p> <p>Level D - (Minimum Requirements)</p> <ul style="list-style-type: none"> - Standard field attire (sleeved shirt; long pants) - Surgical style nitrile gloves (layered as necessary) - Steel toe safety shoes - Safety glasses - Reflective vest for high traffic areas - Hearing protection for high noise areas, or as required based on the noise level at each operation. - Tyvek coveralls and disposable boot covers if the potential for soiling work attire exists. <p>Note: The Safe Work Permit(s) for this task (see Attachment III) will be issued at the beginning of each day to address the tasks planned for that day. As part of this task, additional PPE may be assigned to reflect site-specific conditions or special considerations or conditions associated with any identified task.</p>	<p>Personnel Decontamination: Will consist of the removal of disposable PPE (gloves/coveralls). Wipe down of equipment and instruments, and the use of handi wipes prior to eating or other hand to mouth activities. Disposable PPE and immunoassay kit materials will be bagged between sampling events.</p> <p>Equipment Decontamination: Hand auger buckets will be</p> <ul style="list-style-type: none"> - washed in a solution ofalconox and potable water using brushes and sponges. - rinsed with potable water - sprayed with reagent grade isopropyl alcohol - rinsed with DI water - dried and wrapped in aluminum foil

**TABLE 5-1
TASKS/HAZARDS/CONTROL MEASURES
NAVAL AIR STATION, KEY WEST, FLORIDA**

Tasks/Operation/ Locations	Anticipated Hazards	Recommended Control Measures	Hazard Monitoring/Type and Action Levels	Personal Protective Equipment <i>Italicize text represents optional equipment to be worn when conditions require.</i>	Decontamination Procedures
<p>Surveying using GPS Surveying</p>	<p>Chemical hazards: Exposure to potential site contaminants during surveying activities is unlikely given the nature of surveying work and the limited contact with potentially contaminated media. To further reduce the potential for exposure, site personnel performing surveying activities will minimize contact with potentially contaminated media and will avoid areas where chemical hazards may exist.</p> <p>Refer to Section 6.0 for a list of potential and representative site contaminants. See individual Safe Work Permits contained in Attachment III for specific contaminants of concern associated with particular sites and site activities.</p> <p>Physical hazards:</p> <ol style="list-style-type: none"> 1) Slip, trips, and falls 2) Lifting (strain/muscle pulls) 3) Ambient temperature extremes (heat stress) <p>Natural hazards:</p> <ol style="list-style-type: none"> 4) Inclement weather 5) Insect/animal bites and stings, poisonous plants 	<ol style="list-style-type: none"> 1) Preview work locations and site lines for uneven and unstable terrain. Clear necessary vegetation and establish temporary means for traversing hazardous terrain (e.g. rope ladders). 2) Use multiple persons where necessary for lifting and handling heavy equipment for decontamination purposes. <ul style="list-style-type: none"> - Employ proper lifting techniques as described in Table 5-1, Mobilization/Demobilization. 3) Drink plenty of fluids and seek shelter (shade or air conditioned areas) for breaks. If necessary, evaluate workers for heat stress and follow ACGIH guidelines for work/rest regimens. 4) All operations will be temporarily suspended during electrical storms. 5) Avoid potential nesting areas of biting/stinging insects and animals. Use commercially available insect repellents. Avoid contact with poisonous vegetation. Wear appropriate clothing. Tape ankle and wrists areas to prevent ticks, chiggers, etc. from attaching themselves to your skin. Wear light-colored clothing so that ticks and other biting insects can be easily visible and be removed. If working in areas where snakes are a threat, wear snake chaps to protect against bites. Follow directions as specified in section 6.3 concerning natural hazards. 	<p>Not required</p>	<p>Surveying activities shall be performed in Level D protection</p> <p>Level D Protection consists of the following:</p> <ul style="list-style-type: none"> - Standard field dress including sleeved shirt and long pants - Steel-toe work boots or shoes - <i>Work gloves may be worn if desired.</i> <p>Note: The Safe Work Permit(s) for this task (see Attachment III) will be issued at the beginning of each day to address the tasks planned for that day. As part of this task, additional PPE may be assigned to reflect site-specific conditions or special considerations or conditions associated with any identified task.</p>	<p>Not required based on limited potential for contact with potentially contaminated media.</p>

6.0 HAZARD ASSESSMENT

The following section provides information regarding the chemical, physical, and natural hazards associated with the proposed site activities. Table 6-1 provides information related to primary contaminants of concern that have been identified through analysis and interpretation of available analytical data from previous site investigations. Specifically, toxicological information, exposure limits, symptoms of exposure, physical properties, and air monitoring and sampling data are discussed in the table.

6.1 CHEMICAL HAZARDS

Site history related to the Truman Annex Water Tower site suggest that various contaminants of concern may exist including volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs)/polyaromatic hydrocarbons (PAHs), metals, pesticides, and polychlorinated biphenyls (PCBs).

Although various contaminants have been identified in previous site investigations, the contaminants of greatest concern from an occupational exposure standpoint are hexachlorobutadiene, hexachloroethane, hexachlorocyclopentadiene and 1,2,4-trichlorobenzene. However, these containments were previously detected at concentrations that are unlikely to pose an occupational exposure concern to site workers performing soil sampling activities. Proposed site activities involve only minor disruption of media and are unlikely to generate any airborne vapors or dusts. Predictive modeling using available analytical data was used to select primary contaminants of concern which are provided in Table 6-1. The most likely route of exposure to potential contaminants of concern is likely to be through contact with the skin and incidental ingestion as a result of hand to mouth activities. Use of safe work practices and PPE will minimize the potential for exposure and contact with the skin.

TABLE 6-1

**CHEMICAL, PHYSICAL, AND TOXICOLOGICAL DATA
NAS KEY WEST, KEY WEST FLORIDA**

Substance Identification	CAS No.	Air Monitoring	Exposure Limits	Warning Property Rating	Physical Properties	Health Hazard Information
<p>Hexachlorobutadiene Perchlorobutadiene</p> <p>Used mainly as an intermediate in the manufacture of rubber compounds. It is also used in the production of lubricants, as a fluid for gyroscopes, as a heat transfer liquid, and in hydraulic fluids.</p>	87-68-3	PID: I.P. unknown	<p>OSHA: none</p> <p>ACGIH: 0.02 ppm Skin</p> <p>NIOSH: Ca 0.2 ppm; 0.24 mg/m³ Skin</p> <p>IDLH: not determined</p>	<p>Odor threshold: 1 ppm Where the potential exists for exposure over 0.02 ppm, use a NIOSH approved supplied air respirator with a full face piece operated in pressure-demand or other positive pressure mode.</p> <p>Recommended gloves: Nitrile</p>	<p>Boiling Pt: 419°F; 215°C Melting Pt: -5°F; -20.56°C Solubility: Insoluble Flash Pt: 222°F; 105°C LEL/LFL: NA UEL/UFL: NA Vapor Density: NA Vapor Pressure: 0.2 mm Hg Specific Gravity: 1.55 Incompatibilities: Oxidizers Appearance and Odor: Clear colorless liquid with a mild turpentine-like odor.</p>	Contact may irritate and burn the skin and eyes with possible eye damage. Breathing irritates the nose and throat. Exposure can cause headache, dizziness, tremors and even coma. May be a carcinogen to humans. May damage the liver and kidneys
<p>Hexachlorocyclopentadiene</p> <p>Used as the key intermediate in the manufacture of some pesticides, including heptachlor, chlordane, aldrin, dieldrin, and endrin. It is also used in the manufacture of flame retardants and some resins and dyes.</p>	77-47-4	PID: I.P. unknown	<p>OSHA: none</p> <p>ACGIH: 0.01 ppm</p> <p>NIOSH: 0.01 ppm (0.1 mg/m³) IDLH: not determined</p>	<p>Odor threshold: 0.03 ppm Where the potential exists for exposure over 0.01 ppm, use a MSHA/NIOSH approved supplied-air respirator with a full face piece operated in a pressure-demand or other positive-pressure mode. For increased protection use in combination with an auxiliary self-contained breathing apparatus operated in a pressure-demand or other positive pressure</p> <p>Recommended gloves: Nitrile</p>	<p>Boiling Pt: 462°F; 239°C Melting Pt: 16°F; 8.9°C Solubility: 0.0002% (reacts) Flash Pt: NA LEL/LFL: NA UEL/UFL: NA Vapor Density: NA Vapor Pressure: 0.08 mm Hg at 25 °C Specific Gravity: 1.71 Incompatibilities: Water, light Appearance and Odor: Pale-yellow to amber colored liquid with a pungent, unpleasant odor. A solid below 16°F</p>	Hexachlorocyclopentadiene is very toxic following acute (short-term) oral and inhalation exposures. The chemical is a severe eye, skin, and pulmonary irritant in humans, with effects including tearing of the eyes, sneezing, salivation, blistering, burns, and cough from acute exposures.
<p>Hexachloroethane Carbon hexachloride Perchloroethane</p> <p>Used by the military for smoke-producing devices, in metal and alloy production, and as an ingredient in insecticides.</p>	67-72-1	PID: I.P. 11.22 eV	<p>OSHA: none</p> <p>ACGIH: 1 ppm</p> <p>NIOSH: 1 ppm (10 mg/m³) Skin</p> <p>IDLH: not determined</p>	<p>Odor threshold: 0.15 ppm Where the potential exists for exposures over 1 ppm, use a MSHA/NIOSH approved supplied-air respirator with a full face piece operated in a pressure-demand or other positive pressure mode. For increased protection use in combination with an auxiliary self-contained breathing apparatus operated in a pressure-demand or other positive pressure mode.</p> <p>Exposure to 300 ppm is immediately dangerous to life and health. If the possibility of exposure above 300 ppm exists, use a MSHA/NIOSH approved self-contained breathing apparatus with a full face piece operated in a pressure-demand or other positive-pressure mode.</p> <p>Recommended gloves: Nitrile</p>	<p>Boiling Pt: Sublimes Melting Pt: 368°F; 187°C Solubility: 0.005% Flash Pt: NA LEL/LFL: NA UEL/UFL: NA Vapor Density: NA Vapor Pressure: 0.2 mm Hg at 25 °C Specific Gravity: 2.09 Incompatibilities: Alkalis; metals such as zinc, cadmium, aluminum, hot iron & mercury Appearance and Odor: Colorless crystals with a camphor-like odor</p>	Acts primarily as a central nervous system (CNS) depressant in humans acutely (short-term) exposed to it. It is also moderately irritating to the skin, mucous membranes, and liver in humans. Neurological, liver, and kidney effects have been observed in animals exposed to hexachloroethane.

TABLE 6-1
CHEMICAL, PHYSICAL, AND TOXICOLOGICAL DATA
NAS KEY WEST, KEY WEST FLORIDA

Substance Identification	CAS No.	Air Monitoring	Exposure Limits	Warning Property Rating	Physical Properties	Health Hazard Information
<p>1,2,4-Trichlorobenzene</p> <p>Used as a dye carrier, a herbicide intermediate, a heat-transfer medium, a dielectric fluid in transformers, a degreaser, a lubricant, in synthetic transformer oils, and as a solvent in chemical manufacturing. It was also formerly used as an insecticide against termites.</p>	120-82-1	PID: I.P. unknown	<p>OSHA: none</p> <p>ACGIH: C 40 mg/m³ or 5 ppm</p> <p>NIOSH: C 40 mg/m³ or 5 ppm</p> <p>IDLH: not determined</p>	<p>Odor threshold: 1.4 ppm</p> <p>Where the potential exists for exposure over 5 ppm, use a MSHA/NIOSH approved supplied-air respirator with a full face piece operated in a pressure-demand or other positive pressure mode. For increased protection use in combination with an auxiliary self-contained breathing apparatus operated in a pressure-demand or other positive pressure mode.</p> <p>Recommended gloves: Nitrile</p>	<p>Boiling Pt: 416°F; 214.4°C</p> <p>Melting Pt: 63°F; 16.95°C</p> <p>Solubility: 0.003%</p> <p>Flash Pt: 222°F; 105°C</p> <p>LEL/LFL: 2.5%</p> <p>UEL/UFL: 6.6%</p> <p>Vapor Density: 6.2</p> <p>Vapor Pressure: 1 mm Hg at 101°F</p> <p>Specific Gravity: 1.45</p> <p>Incompatibilities: Acids, acid fumes, oxidizers, steam</p> <p>Appearance and Odor: Colorless liquid or crystalline solid (below 63°F) with an aromatic odor.</p>	<p>Breathing can irritate the nose, throat and eyes. Contact can irritate the skin. Prolonged contact may cause skin burns. Repeated exposure may damage the liver and kidneys.</p>

6.2 PHYSICAL HAZARDS

The physical hazards that may be present during the performance of site activities are summarized below:

- Slips, trips, and falls
- Lifting (strain/muscle pulls)
- Heat Stress (Ambient temperature extremes)

These physical hazards are discussed in Table 5-1 as applicable to each site task. Further, many of these hazards are discussed in detail in Section 4.0 of the Health and Safety Guidance Manual. Specific discussions on some of these hazards are presented below.

6.2.1 Slip, Trip and Fall Hazards

Various potential slip, trip and fall hazards may be encountered during the performance of planned site activities. These hazards are associated with working outdoors where uneven or wet terrain may be encountered. To minimize the potential for worker injury from these hazards, the following requirements must be observed:

- Maintain proper housekeeping in work areas.
- Preview and inspect work areas to identify and eliminate slip, trip, or fall hazards. In outdoor locations, pay particular attention to sink holes or other depressions that may be encountered.
- Use footwear with adequate traction.
- Prepare work areas by removing tripping hazards (ruts, roots, debris). This is especially critical concerning approach pathways leading to or around heavy equipment.

6.3 NATURAL HAZARDS

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

6.3.1 Fire Ants

Fire ants present a unique situation when working outdoors in Florida. Their aggressive behavior and their ability to sting repeatedly can pose a unique health threat. The sting injects venom that causes an extreme burning sensation. Pustules form which can become infected if scratched. Allergic reactions of people sensitive to the venom include dizziness, swelling, shock and in extreme cases unconsciousness and death. People exhibiting such symptoms should be taken for immediate medical evaluation.

Fire ants can be identified by their habitat. They build mounds in open sunny areas sometimes supported by a wall or shrub. The mound has no external opening. The size of the mound can range from a few inches across to some which are in excess of two feet or more in height and diameter. When disturbed they defend it by swarming out and over the mound, even running up grass blades and sticks.

6.3.2 Snakes, Insects, and Other Animals

The site is suspected of supporting a large population of eastern diamondback rattlesnakes. Given that areas to be investigated could be prime nesting and/or hiding locations for snakes and insects, precautions will be taken when opening manholes and other access doors. When possible, doors and manhole covers will be opened away from personnel to allow snakes or insects to escape. Personnel should avoid reaching into areas that are not visibly clear of snakes or insects. Snake chaps will be worn in areas of known or anticipated snake infestation. Site personnel who are allergic to stinging insects such as bees, wasps, and hornets must be particularly careful since severe illness and death may result from allergic reactions. As with any medical condition or allergy, information regarding the condition must be listed on the Medical Data Sheet and the FOL and SSO notified.

There are various areas throughout the U.S. where Lyme Disease is endemic. Fortunately, Florida is not one of these areas. Nonetheless, personnel should be aware of the hazards of tick bites, Lyme Disease, and Southern Tick Associated Rash Illness (STARI). The longer a disease carrying tick remains attached to the body, the greater the potential for contracting the disease. Wearing long sleeved shirts and long pants (tucked into boots). As well as performing frequent body checks will prevent long term attachment. Site first aid kits should be equipped with medical forceps and rubbing alcohol to assist in tick removal. For information regarding tick removal procedures, and symptoms of exposure consult Section 4.0 of the Health and Safety Guidance Manual.

An Office of Natural Resources or similar entity on Base should be contacted for further direction on the hazards and precautions of naturally occurring wildlife and insects.

6.3.3 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 conditions arise (electrical storms, hurricanes, etc.), the FOL and/or the SSO will be responsible for temporarily suspending or terminating activities until hazardous conditions no longer exist.

6.3.4 Heat Stress

Given the geographic location of the site and the project schedule, overexposure to high ambient temperatures (heat stress) may exist during performance of this work depending on the project schedule. Work performed when ambient temperatures exceed 70°F may result in varying levels of heat stress (heat rash, heat cramps, heat exhaustion, and/or heat stroke) depending on variables such as wind speed, humidity, and percent sunshine, as well as physiological factors such as metabolic rate and skin moisture content. Additionally, work load and level of protective equipment will affect the degree of exposure. Site personnel will be encouraged to drink plenty of fluids to replace those lost through perspiration. Additional information such as Work-Rest Regimens and personnel monitoring may be found in Section 4.0 of the Health & Safety Guidance Manual. Heat stress monitoring will be conducted at the SSO's discretion.

Many of these physical hazards are discussed in detail in Section 4.0 of the Health and Safety Guidance Manual. Additional information regarding physical hazards associated with the site is provided in Table 5-1 of this HASP.

7.0 AIR MONITORING

Direct reading instruments will be used at the site to detect and evaluate the presence of site contaminants and other potentially hazardous conditions. As a result, specific air monitoring measures and requirements are established in Table 5-1 pertaining to the specific hazards and tasks of an identified operation. Additionally, the Health and Safety Guidance Manual, Section 1.0, contains detailed information regarding direct reading instrumentation, as well as general calibration procedures of various instruments.

7.1 INSTRUMENTS AND USE

Instruments will be used primarily to monitor source points and worker breathing zone areas, while observing instrument action levels. Action levels are discussed in Table 5-1 as they may apply to a specific task or location.

7.1.1 Photoionization Detector or Flame Ionization Detector

In order to accurately monitor for any substances that may present an exposure potential to site personnel, a Photoionization Detector (PID) using a lamp energy of 11.7 eV or higher will be used. This instrument will be used to monitor potential source areas and to screen the breathing zones of employees during site activities. The PID with this lamp strength has been selected because it is capable of detecting the organic vapors of concern.

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

7.1.2 Hazard Monitoring Frequency

Table 5-1 presents the frequencies that hazard monitoring will be performed as well as the action levels that will initiate the use of elevated levels of protection. The SSO may decide to increase these frequencies based on instrument responses and site observations. The frequency at which monitoring is performed will not be reduced without the prior consent of the PHSO or HSM.

7.2 INSTRUMENT MAINTENANCE AND CALIBRATION

Hazard monitoring instruments will be maintained and pre-field calibrated by the TtNUS Equipment Manager. Operational checks and field calibration will be performed on the instruments each day prior to their use. Field calibration will be performed on instruments according to manufacturer's recommendations (for example, the PID 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). Calibration efforts must be documented. Figure 7-1 is provided for documenting these calibration efforts. This information may instead be recorded in a field operations logbook, provided that the information specified in Figure 7-1 is recorded. This required information includes the following:

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

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 TtNUS personnel participating in site activities.

TtNUS personnel must complete 40 hours of introductory hazardous waste site training prior to performing work at NAS Key West. Additionally, TtNUS 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 TtNUS introductory, supervisory, and refresher training as well as site-specific training will be maintained at the project. Copies of certificates or other official documentation will be used to fulfill this requirement.

TtNUS will conduct a pre-activities training session prior to initiating site work. Additionally, a brief meeting will be held daily to discuss operations planned for that day. At the end of the workday, a short meeting will be held to discuss the operations completed and any problems encountered.

8.2 SITE-SPECIFIC TRAINING

TtNUS will provide site-specific training to site personnel who will perform work on this project. Site-specific training will also be provided to other personnel [U.S. Department of Defense (DOD), EPA, etc.] who may enter the site to perform functions that may or may not be directly related to site operations. Site-specific training will include:

- 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
- Work practices to minimize risks from hazards
- 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)
- Spill response procedures
- Review of the contents of relevant Material Safety Data Sheets

Site-specific documentation will be established through the use of Figure 8-2. Site personnel and visitors must sign this document upon receiving site-specific training.

8.3 MEDICAL SURVEILLANCE

TtNUS personnel participating in project field activities will have had a physical examination meeting the requirements of TtNUS's medical surveillance program and will be medically qualified to perform hazardous waste site work using respiratory protection. Documentation for medical clearances will be maintained in the TtNUS Pittsburgh and/or Aiken offices and made available as necessary.

Each field team member and visitor entering the Exclusion Zone(s) shall be required to complete and submit a copy of Medical Data Sheet presented Attachment II. 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.

9.0 SITE CONTROL

Site operations and control will be facilitated through the use of established work zones and security and control of those zones.

9.1 WORK ZONES

Tetra Tech NUS will delineate and use work zones in conjunction with decontamination procedures to prevent the spread of contaminants to other areas of the site. A three-zone approach will be used for work at this site; an Exclusion Zone, a Contamination Reduction Zone, and a Support Zone. These will be used to control access to the work areas, restricting the general public, avoiding potentials to spread any contaminants, and to protect individuals who are not cleared to enter by way of training and/or medical surveillance qualifications.

9.1.1 Exclusion Zone

An Exclusion Zone will be established at each location where intrusive site work will be performed. The purpose of an exclusion zone is to define an area where specified requirements and restrictions must be observed (such as PPE usage, restrictions against smoking/eating etc.). These are areas that could be adversely impacted by either chemical or physical hazards. Exclusion Zone sizes and dimensions can vary based on various factors, such as:

- The nature of planned activities and the size of the area needed to safely perform them
- Physical and topographical features of the site
- Weather conditions
- Field and analytical measurements of air and environmental contaminants
- Air dispersion calculations
- Physical, chemical and toxicological properties of the contaminants being investigated

For soil sampling and decontamination the exclusion zone for will be set at 10 feet surrounding the personnel and sampling equipment.

9.1.2 Contamination Reduction Zone

The contamination reduction zone will be split to represent two separate functions. The first function will be a control/supply point for supporting exclusion zone activities. The second function, which may take

place a sufficient distance from the exclusion zone is the decontamination of personnel and sampling equipment.

In order to move from the exclusion zone to a separate location the following activities will be used:

- As samplers move from location to location during sampling activities, dedicated sampling devices and PPE will be washed of gross contamination, removed, separated, and bagged. Personnel will use hygienic wipes, such as Handy Wipes, as necessary for personnel decontamination until they can access the centralized decontamination unit. At the first available opportunity personnel will wash their face and hands. This is also true prior to breaks and lunch when contamination can be transferred to the mouth through hand to mouth contact. This route of exposure is estimated to have the greatest and most likely potential for exposure to the contaminants of concern.
- Potentially contaminated tooling along with PPE will be wrapped, when necessary, for transport to the decontamination area.
- Upon completion of the assigned tasks personnel will move through the central decontamination area to clean reusable PPE and field equipment.

9.1.3 Support Zone

The Support Zone for this project will include a staging area where site vehicles can be parked, equipment will be unloaded, and where food and drink containers will be maintained. The support zones will be established in clean areas of the site.

9.2 SAFE WORK PERMITS

Tasks conducted in support of this project will be performed using Safe Work Permits to guide and direct field crews. Partially completed Safe Work Permits have been prepared for each of the planned tasks and are included in Attachment III of this HASP. The SSO is responsible for completing the remaining portions of these permits, and for reviewing them with task participants as part of daily task-specific tailgate meetings. A blank Safe Work Permit is included in Figure 9-1 as an example.

**FIGURE 9-1
SAFE WORK PERMIT**

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

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

II. Primary Hazards: Potential hazards associated with this task: _____

III. Field Crew: _____

IV. On-site Inspection conducted Yes No Initials of Inspector _____ TtNUS

Equipment Inspection required Yes No Initials of Inspector _____ TtNUS

V. Protective equipment required

Level D Level B

Level C Level A

Modifications/Exceptions: _____

Respiratory equipment required

Yes Specify on the reverse

No

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

Primary Route(s) of Exposure/Hazard: _____

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

VII. Additional Safety Equipment/Procedures

Hard-hat..... Yes No

Safety Glasses Yes No

Chemical/splash goggles..... Yes No

Splash Shield..... Yes No

Splash suits/coveralls Yes No

Impermeable apron Yes No

Steel toe work shoes or boots ... Yes No

High Visibility vest..... Yes No

First Aid Kit..... Yes No

Safety Shower/Eyewash..... Yes No

Modifications/Exceptions: _____

Hearing Protection (Plugs/Muffs)..... Yes No

Safety belt/harness Yes No

Radio/Cellular Phone..... Yes No

Barricades Yes No

Gloves (Type – Work)..... Yes No

Work/rest regimen Yes No

Chemical Resistant Boot Covers Yes No

Tape up/use insect repellent Yes No

Fire Extinguisher..... Yes No

Other Yes No

VIII. Site Preparation

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

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

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

X. Special instructions, precautions: _____

Permit Issued by: _____

Permit Accepted by: _____

The use of these permits will ensure that site-specific considerations and changing conditions are incorporated and addressed into the field activities. Safe Work Permits will require the signatures of either the FOL or the SSO, as well as the signature of a representative of any subcontractors that will participate in the task (when appropriate). Personnel that will be engaged in on-site activities must be made aware of the contents of the appropriate Safe Work Permits before participating in any of the covered tasks. If additional tasks become necessary, the PHSO is to be notified so that this HASP can be appropriately reviewed/modified and to help prepare the necessary Safe Work Permit(s).

The use of these permits will establish and provide for reviewing protective measures and hazards associated with each operation. This HASP will be used as the primary reference for selecting levels of protection and control measures. The Safe Work Permit will take precedence over the HASP when more conservative measures are required based on specific site conditions.

Upon completion of the work for which the Safe Work Permit was assigned, the Safe Work Permit will be turned into the FOL or the SSO. Concerns, complaints, and suggestions may be made on the reverse of the Safe Work Permit for consideration by the FOL and/or the SSO. Permits turned in with suggestions, difficulties, or complaints are to be forwarded to the PHSO for review.

9.3 SITE MAP

Once the areas of contamination, access routes, topography, dispersion routes are determined, a site map will be generated and adjusted as site conditions change. This map will be posted to illustrate up-to-date information of contaminants and adjustment of zones and access points. This map will be posted at the field support trailer or other centralized location. Figure 2-1 in the Work Plan will serve as the preliminary version until investigation reveals more information. A map of the base is included in this HASP in Figure 9-2.

9.4 BUDDY SYSTEM

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

9.5 MATERIAL SAFETY DATA SHEET (MSDS) REQUIREMENTS

Tetra Tech NUS 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. The MSDSs will be maintained in a

central location (i.e., temporary office) and will be available for anyone to review upon request. The SSO will be responsible for implementing a site-specific Hazard Communication Program (See Section 5.0 of the TtNUS Health and Safety Guidance Manual). This includes collection of MSDSs, creation and maintenance of an accurate Chemical Inventory Listing, container labeling and personnel training issues, and other aspects of Hazard Communication.

9.6 COMMUNICATION

It is anticipated that site personnel will be working in close proximity during proposed field activities. In the event that site personnel are in isolated areas or are separated by significant distances, a supported means of communication between field crews will be utilized. Two-way radio communication devices, if needed, will be used only with NAS Key West approval.

External communications may be accomplished utilizing telephones that have been/can be installed at predetermined and approved locations, or through cellular phones. External communication will primarily be used for the purpose of resource and emergency resource communications. Prior to the commencement of site activities, the FOL will determine and arrange for appropriate means to accomplish external communications.

Switch off the phone when in any area with a potentially explosive atmosphere and obey signals and instructions. Most manufacturers advised users to switch off the phone when at a refueling point. Do not use near fuels or chemicals or where blasting is in progress. Also, any restrictions or regulations in force at the base related to cellular phone use must be observed.

9.7 SITE VISITORS

Potential site visitors that may be encountered during the performance of the fieldwork could include the following:

- Personnel invited to observe or participate in operations by Tetra Tech NUS.
- Regulatory personnel (i.e., DOD, FDEP, EPA, OSHA, etc.)
- US Naval Personnel
- Other authorized visitors

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

Once access to the base is obtained, personnel who require access to Tetra Tech NUS work sites (areas of ongoing operations) will be required to obtain permission from the FOL and the Base Contact. Upon gaining access to the work site, site visitors wishing to observe operations in progress will be required to meet the minimum requirements as stipulated below.

- 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 individuals name (proper identification required), who they represent, and the purpose for the visit. The FOL is responsible for ensuring that site visitors are escorted.
- Site visitors will be required to produce the necessary information supporting clearance on to the site. This includes information attesting to applicable training (40-hours of HAZWOPER, 8-Hour Refresher as applicable), and medical surveillance as stipulated in Section 8.4, of this document. In addition, to enter the sites operational zones during planned activities, visitors will be required to first go through site-specific training covering the topics stipulated in Section 8.2 of this HASP.

Once the site visitors have completed the above items they will be permitted to enter the site and applicable operational areas. Visitors are required to observe the protective equipment and site restrictions in effect at the work areas visited. Visitors not meeting the requirements as stipulated in this plan for site clearance will not be permitted to enter the site operational zones during planned activities. Any incidence of unauthorized site visitation will cause on-site activities to be terminated until that visitor can be removed. Removal of unauthorized visitors will be accomplished with support from the Base Contact, if necessary. At a minimum, the Base Contact will be notified of any unauthorized visitors.

9.8 SITE SECURITY

As this activity will take place at a United States Naval facility, the first line of security will be provided by the base gate restricting the general public. The second line of security will take place at the work site referring interested parties to the FOL and Base Contact.

Security at the work areas will be accomplished using field personnel. This is a multiple person operation, involving multiple operational zones. Tetra Tech NUS personnel will retain complete control over active operational zones.

The Base Contact will serve as the focal point for base personnel and interested parties and will serve as the primary enforcement contact.

10.0 SPILL CONTAINMENT PROGRAM

10.1 SCOPE AND APPLICATION

It is not anticipated that bulk hazardous materials (over 55-gallons) will be accumulated or handled as part of the scope of work. It is also not anticipated that spillage of stored materials would constitute a danger to human health or the environment. Prior remediation activities have disturbed and homogenized the surface soil at the water tower site. Any soil IDW that is generated will be placed back into the sample excavation at each respective sampling location. Decontamination fluids, and disposable PPE, and investigation materials (e.g., acetate liners) will be drummed or bagged and disposed of in accordance with Federal, State, and local regulations.

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 few areas vulnerable to this hazard including the area used for central staging and decontamination.

10.3 LEAK AND SPILL DETECTION

To establish an early detection of potential spills or leaks, a periodic walk-around by personnel staging or disposing of containers will be conducted at least once each week while site activities are underway. These inspections are to be performed during working hours, to visually determine that containers are not leaking. Any leaks identified will be collected and contained using absorbents such as Oil-dry, vermiculite, or sand, stored at the staging area in a drum conspicuously marked. This material too, will be containerized for disposal pending analyses. Inspections are to be documented in the Project Logbook.

10.4 PERSONNEL TRAINING AND SPILL PREVENTION

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

10.5 SPILL PREVENTION AND CONTAINMENT EQUIPMENT

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

- 55-gallon U.S. DOT 17-E or 17-H drums
- Shovels, rakes, and brooms
- Labels

10.6 SPILL CONTROL PLAN

It is not anticipated that a spill will occur which the field crews cannot handle. Should one occur, however, the FOL or SSO will carry out notification of appropriate emergency response agencies. The following describes the steps field personnel will implement upon detecting a spill or leak.

1. Notify the SSO or FOL immediately upon the detection of a leak or spill.
2. Use the personal protective equipment stored at the staging area. Take immediate actions to stop the leak or spill by plugging or patching the drum/container or raising the leak to the highest point. Spread the absorbent material in the area of the spill covering completely.
3. Transfer the material to a new drum/container, collect and containerize the absorbent material. Label the new drum/container appropriately. Await analyses for shipment or disposal options.

11.0 CONFINED-SPACE ENTRY

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

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

A Permit-Required Confined Space is one that:

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

For further information on confined space, consult the Health and Safety Guidance Manual or call the PHSO. If confined space operations are to be performed as part of the scope of work, detailed procedures and training requirements will have to be addressed.

12.0 MATERIALS AND DOCUMENTATION

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

- A complete copy of this HASP
- Health and Safety Guidance Manual
- Incident Reports
- Medical Data Sheets
- Material Safety Data Sheets for chemicals brought on site, including decon solution, fuels, sample preservations, calibration gases, etc.
- A full size OSHA Job Safety and Health Poster
- Training/Medical Surveillance Documentation Form (blank)
- Emergency Reference Form (Section 2.0, extra copy for posting)
- A copy of the confined space entry program with extra copies of permits

12.1 MATERIALS TO BE POSTED OR MAINTAINED AT THE SITE

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

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

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

The OSHA Job Safety & Health Protection Poster (posted) - this poster, as directed by 29 CFR 1903.2 (a)(1), should be conspicuously posted in places where notices to employees are normally posted. Each FOL shall ensure that this poster is not defaced, altered, or covered by other material.

Site Clearance Posting (maintained) - This list is found within the training section of the HASP (See Figure 8-2). This list identifies 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 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 personnel to be carried on their person.

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

13.0 GLOSSARY

ACGIH	American Conference of Governmental Industrial Hygienists
APR	Air Purifying Respirators
AST	Aboveground Storage Tank
CAS	Chemical Abstract Service
CFR	Code of Federal Regulations
CNS	Central Nervous System
CRZ	Contamination Reduction Zone
DOD	Department of Defense
DOT	Department of Transportation
EPA	Environmental Protection Agency
FOL	Field Operations Leader
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
HEPA	High Efficiency Particulate Air
I.P.	Ionization Potential
N/A	Not Available
NIOSH	National Institute Occupational Safety and Health
OSHA	Occupational Safety and Health Administration (U.S. Department of Labor)
PAH	Polycyclic Aromatic Hydrocarbons
PEL	Permissible Exposure Limit
PHSO	Project Health and Safety Officer
PPE	Personal Protective Equipment
PVC	Poly Vinyl Chloride
SAP	Sampling and Analysis Plan
SCBA	Self Contained Breathing Apparatus
SSO	Site Safety Officer
STEL	Short Term Exposure Limit
SWMU	Solid Waste Management Unit
TOM	Task Order Manager
TPH	Total Petroleum Hydrocarbons
TWA	Time Weighted Average
WP	Work Plan

ATTACHMENT I

**INJURY/ILLNESS PROCEDURE
AND REPORT FORM**

TETRA TECHNUS, INC.

INJURY/ILLNESS PROCEDURE WORKER'S COMPENSATION PROGRAM

WHAT YOU SHOULD DO IF YOU ARE INJURED OR DEVELOP AN ILLNESS AS A RESULT OF YOUR EMPLOYMENT:

- Stop work as needed to ensure no further harm is done.
- If injury is minor, obtain appropriate first aid treatment.
- If injury or illness is severe or life threatening, obtain professional medical treatment at the nearest hospital emergency room. Check with your office location or project health and safety plan for specific instructions.
- If incident involves an injury, illness, or chemical exposure on a project work site, follow instructions in the Health & Safety Plan.
- Immediately report any injury or illness to your supervisor or office manager. In addition, you must contact your Human Resources representative, Marilyn Duffy at (412) 921-8475, and the Corporate Health and Safety Manager, Matt Soltis at (412) 921-8912 within 24 hours of the injury. You will be required to complete an [Injury/Illness Report](#). You may also be required to participate in a more detailed investigation with the Health Sciences Department.
- In the event of a serious near-miss incident, a "Serious Near Miss Report" (Form AR-2, available online at <https://go2.tetrattech.com> under "Departments", "Health and Safety", "Accident Reporting Procedures", hyperlink for "Serious Near Miss Report") must be completed and faxed to the Corporate Health and Safety Manager within 48 hours.
- If further medical treatment is needed, our insurance carrier, ACE, will provide information on the authorized providers customized to the location of the injured employee. You can find this information by accessing the website of ACE's claims handler, ESIS, at : www.esis.com. These providers are to be used for treatment of Worker's Compensation injuries subject to the laws of the state in which you work.

ADDITIONAL QUESTIONS REGARDING WORKER'S COMPENSATION:

Contact your local Human Resources representative (Marilyn Duffy), Corporate Health and Safety Manager (Matt Soltis), or Corporate Administration in Pasadena, California, at (626) 351-4664.

Worker's compensation is a state-mandated program that provides medical and disability benefits to employees who become disabled due to job related injury or illness. Tetra Tech, Inc. and its subsidiaries pay premiums on behalf of their employees. This program is based on a no-fault system, and benefits are provided for covered events as an exclusive remedy to the injured employee regardless of fault. The types of injuries or illnesses covered and the amount of

benefits paid are regulated by the state worker's compensation boards and vary from state to state. Corporate Administration in Pasadena is responsible for administering the Company's worker's compensation program. The following is a general explanation of worker's compensation provided in the event that you become injured or develop an illness as a result of your employment with Tetra Tech or any of its subsidiaries. Please be aware that the term used for worker's compensation varies from state to state.

WHO IS COVERED:

All employees of Tetra Tech, whether they are on a full-time, part-time or temporary status, working in an office or in the field, are entitled to worker's compensation benefits from the first day of work. All employees must follow the above injury/illness reporting procedures. If you are working out-of-state and away from your home office, you are still eligible for worker's compensation benefits.

Consultants, independent contractors, and employees of subcontractors and employees from temporary employment agencies are not covered by Tetra Tech's Worker's Compensation plan.

WHAT IS COVERED:

If you are injured or develop an illness caused by your employment, worker's compensation benefits are available to you subject to the laws of the state you work in. Injuries do not have to be serious; even injuries treated by first aid practices are covered and must be reported.



TETRA TECH, INC.

ACCIDENT AND ILLNESS INVESTIGATION REPORT

To: _____
Subsidiary Health and Safety Representative

Prepared by: _____

Position: _____

cc: _____
Workers Compensation Administrator

Office: _____

Project name: _____

Telephone number: _____

Project number: _____

Fax number: _____

Information Regarding Injured or Ill Employee

Name: _____

Office: _____

Home address: _____

Gender: M F No. of dependents: _____

Marital status: _____

Home telephone number: _____

Date of birth: _____

Occupation (regular job title): _____

Social security number: _____

Department: _____

Date of Accident: _____

Time of Accident: _____ a.m. p.m.

Time Employee Began Work: _____

Check if time cannot be determined

Location of Incident

Street address: _____

City, state, and zip code: _____

County: _____

Was place of accident or exposure on employer's premises? Yes No

Information About the Incident

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

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

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.



TETRA TECH, INC.

ACCIDENT AND ILLNESS INVESTIGATION REPORT (Continued)

Information About the Incident (Continued)

What was the injury or illness? Describe the part(s) of the body affected and how it was affected. Be more specific than "hurt," "pain," or "sore." Examples "Strained back"; "Chemical burn, right hand"; "Carpal tunnel syndrome, left wrist"

Describe the Object or Substance that Directly Harmed the Employee: Examples: "Concrete floor"; "Chlorine"; "Radial arm saw." If this question does not apply to the incident, write "Not applicable."

Did the employee die? Yes [] No [] Date of death: _____

Was employee performing regular job duties? Yes [] No []

Was safety equipment provided? Yes [] No [] Was safety equipment used? Yes [] No []

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

Witness (Attach additional sheets for other witnesses.)

Name: _____

Company: _____

Street address: _____

City: _____ State: _____ Zip code: _____

Telephone number: _____

Medical Treatment Required? [] Yes [] No [] First aid only

Name of physician or health care professional: _____

If treatment was provided away from the work site, provide the information below.

Facility name: _____

Street address: _____

City: _____ State: _____ Zip code: _____

Telephone number: _____

Was the employee treated in an emergency room? [] Yes [] No

Was the employee hospitalized over night as an in-patient? [] Yes [] No

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.



TETRA TECH, INC.

ACCIDENT AND ILLNESS INVESTIGATION REPORT (Continued)

Corrective Action(s) Taken by Unit Reporting the Accident:

Corrective Action Still to be Taken (by whom and when):

Name of Tetra Tech employee the injury or illness was first reported to: _____

Date of Report: _____ **Time of Report:** _____

I have reviewed this investigation report and agree, to the best of my recollection, with its contents.

Printed Name of Injured Employee

Telephone Number

Signature of Injured Employee

Date

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

Title	Printed Name	Signature	Telephone Number	Date
Office Manager				
Project Manager				
Site Safety Coordinator or Office Health and Safety Representative				

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.



TETRA TECH, INC.

ACCIDENT AND ILLNESS INVESTIGATION REPORT (Continued)

To Be Completed by the Subsidiary Health and Safety Representative

Classification of Incident:
 Injury Illness

Result of Incident:
 First aid only
 Days away from work
 Remained at work but incident resulted in job transfer or work restriction
 Incident involved days away and job transfer or work restriction
 Medical treatment only

No. of days away from work _____
Date employee left work _____
Date employee returned to work _____
No. of days placed on restriction or job transfer: _____

OSHA Recordable Case Number _____

To Be Completed by Human Resources

Social security number: _____
Date of hire: _____ Hire date for current job: _____
Wage information: \$ _____ per Hour Day Week Month
Position at time of hire: _____
Current position: _____ Shift hours: _____
State in which employee was hired: _____
Status: Full-time Part-time Hours per week: _____ Days per week: _____
Temporary job end date: _____

To Be Completed during Report to Workers Compensation Carrier

Date reported: _____ Reported by: _____
Confirmation number: _____
Name of contact: _____
Field office of claims adjuster: _____

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.

ATTACHMENT II

MEDICAL DATA SHEET

MEDICAL DATA SHEET

This Medical Data Sheet must be completed by all 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 _____

Name of Next Kin _____

Drug or other Allergies _____

Particular Sensitivities _____

Do You Wear Contacts? _____

Provide a Checklist of Previous Illnesses or Exposure to Hazardous Chemicals _____

What medications are you presently using? _____

Do you have any medical restrictions? _____

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

I am the individual described above. I have read and understand this HASP.

Signature

Date

ATTACHMENT III
SAFE WORK PERMITS

**SAFE WORK PERMIT FOR
MOBILIZATION AND DEMOBILIZATION
NAS KEY WEST, FLORIDA**

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

I. Work limited to the following (description, area, equipment used): Mob and Demob activities at the Truman Annex

II. Primary Hazards: Lifting, slips, trip and falls, ambient temperature extremes, insect/animal bites and stings, poisonous plants, and inclement weather.

III. Field Crew: _____

IV. On-site Inspection conducted Yes No Initials of Inspector _____ TtNUS

Equipment Inspection required Yes No Initials of Inspector _____ TtNUS

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
None expected during this task.	_____	_____	_____
_____	_____	_____	_____

Primary Route(s) of Exposure/Hazard: _____

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

VII. Additional Safety Equipment/Procedures

Hard-hat Yes No
Safety glasses Yes No
Chemical/splash goggles Yes No
Splash shield Yes No
Splash suits/coveralls Yes No
Impermeable apron Yes No
Steel toe work shoes or boots Yes No
High visibility vest Yes No
First aid kit Yes No
Safety shower/Eyewash Yes No

Hearing protection (Plugs/Muffs) Yes No
Safety belt/harness Yes No
Radio/cellular phone Yes No
Barricades Yes No
Gloves (Type – work) Yes No
Work/rest regimen Yes No
Chemical resistant boot covers Yes No
Tape up/use insect repellent .. Yes No
Fire extinguisher Yes No
Other Yes No

Modifications/Exceptions: _____

VIII. Site Preparation

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

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

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

X. Special instructions, precautions: _____

Permit Issued by: _____ Permit Accepted by: _____

**SAFE WORK PERMIT FOR
SOIL SAMPLING
NAS KEY WEST, FLORIDA**

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

I. Work limited to the following (description, area, equipment used): Soil sampling using hand auring techniques and the use of immunoassay kits for PCB detection

II. Primary Hazards: Chemical contamination, transfer contamination, pinch/compression, noise, energized systems, 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 _____ TtNUS
Equipment Inspection required Yes No Initials of Inspector _____ TtNUS

V. Protective equipment required

Level D Level B
 Level C Level A

Modifications/Exceptions: _____

Respiratory equipment required

Yes Specify on the reverse
 No

VI. Chemicals of Concern

hexachlorobutadiene
hexachloroethane
hexachloropentadiene
1,2,4-trichlorobenzene

Hazard Monitoring

PID with 11.7 eV lamp

Dust

Action Level(s)

Any sustained readings in worker breathing zone

visible dust

Response Measures

Suspend work and retreat to unaffected area until readings return to background levels
Use area wetting techniques

Primary Route(s) of Exposure/Hazard: inhalation, skin contact, incidental ingestion

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

VII. Additional Safety Equipment/Procedures

Hard-hat Yes No
 Safety glasses Yes No
 Chemical/splash goggles Yes No
 Splash shield Yes No
 Splash suits/coveralls Yes No
 Impermeable apron Yes No
 Steel toe work shoes or boots Yes No
 High visibility vest Yes No
 First aid kit Yes No
 Safety shower/eyewash Yes No

Hearing Protection (Plugs/Muffs) Yes No
 Safety belt/harness Yes No
 Radio/cellular phone Yes No
 Barricades Yes No
 Gloves (Type – nitrile) Yes No
 Work/rest regimen Yes No
 Chemical resistant boot covers Yes No
 Tape up/use insect repellent Yes No
 Fire extinguisher Yes No
 Other Yes No

Modifications/Exceptions: _____

VIII. Site Preparation

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

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

X. Special instructions, precautions: _____

Permit Issued by: _____ Permit Accepted by: _____

**SAFE WORK PERMIT FOR
DECONTAMINATION
NAS KEY WEST, FLORIDA**

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

I. Work limited to the following (description, area, equipment used): Decontamination activities at Truman Annex

II. Primary Hazards: Chemical contamination, decontamination fluids, lifting, ambient temperature extremes, and inclement weather

III. Field Crew: _____

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

V. Protective equipment required **Respiratory equipment required**
 Level D Level B Yes Specify on the reverse
 Level C Level A No
 Modifications/Exceptions: _____

VI. Chemicals of Concern	Hazard Monitoring	Action Level(s)	Response Measures
<u>hexachlorobutadiene</u>	<u>PID with 11.7 eV lamp</u>	<u>Any sustained readings</u>	<u>Re-decontaminate equipment</u>
<u>hexachloroethane</u>	<u>or FID</u>	_____	_____
<u>hexachloropentadiene</u>	_____	_____	_____
<u>1,2,4-trichlorobenzene</u>	_____	_____	_____

Primary Route(s) of Exposure/Hazard: _____

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

VII. Additional Safety Equipment/Procedures

Hard-hat	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Hearing protection (Plugs/Muffs)	<input type="checkbox"/> Yes <input type="checkbox"/> No
Safety glasses	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Safety belt/harness	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Chemical/splash goggles	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Radio/cellular phone	<input type="checkbox"/> Yes <input type="checkbox"/> No
Splash shield	<input type="checkbox"/> Yes <input type="checkbox"/> No	Barricades	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Splash suits/coveralls	<input type="checkbox"/> Yes <input type="checkbox"/> No	Gloves (Type – nitrile)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Impermeable apron	<input type="checkbox"/> Yes <input type="checkbox"/> No	Work/rest regimen	<input type="checkbox"/> Yes <input type="checkbox"/> No
Steel toe work shoes or boots	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Chemical resistant boot covers	<input type="checkbox"/> Yes <input type="checkbox"/> No
High visibility vest	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Tape up/use insect repellent	<input type="checkbox"/> Yes <input type="checkbox"/> No
First aid kit	<input type="checkbox"/> Yes <input type="checkbox"/> No	Fire extinguisher	<input type="checkbox"/> Yes <input type="checkbox"/> No
Safety shower/eyewash	<input type="checkbox"/> Yes <input type="checkbox"/> No	Other	<input type="checkbox"/> Yes <input type="checkbox"/> No

Modifications/Exceptions: _____

VIII. Site Preparation

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

IX. Additional Permits required (Hot work, confined space entry, excavation etc.)

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

X. Special instructions, precautions: _____

Permit Issued by: _____ Permit Accepted by: _____

**SAFE WORK PERMIT FOR
GPS SURVEY
NAS PENSACOLA FLORIDA**

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

I. Work limited to the following (description, area, equipment used): Gps Survey at UST 18

II. Primary Hazards: Slips, trips and falls, lifting, ambient temperature extremes, inclement weather, insect/animal bites or stings, poisonous plants.

III. Field Crew: _____

IV. On-site Inspection conducted Yes No Initials of Inspector TtNUS
Equipment Inspection required Yes No Initials of Inspector TtNUS

V. Protective equipment required
 Level D Level B
 Level C Level A
 Modifications/Exceptions: _____

Respiratory equipment required
 Yes Specify on the reverse
 No

VI. Chemicals of Concern	Hazard Monitoring	Action Level(s)	Response Measures
<u>None expected during this task.</u>	_____	_____	_____
_____	_____	_____	_____

Primary Route(s) of Exposure/Hazard: _____

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

VII. Additional Safety Equipment/Procedures

Hard-hat <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Hearing protection (Plugs/Muffs) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Safety glasses <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Safety belt/harness <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Chemical/splash goggles <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Radio/cellular phone <input type="checkbox"/> Yes <input type="checkbox"/> No
Splash shield <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Barricades <input type="checkbox"/> Yes <input type="checkbox"/> No
Splash suits/coveralls <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Gloves (Type – _____) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Impermeable apron <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Work/rest regimen <input type="checkbox"/> Yes <input type="checkbox"/> No
Steel toe work shoes or boots <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Chemical resistant boot covers <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
High visibility vest <input type="checkbox"/> Yes <input type="checkbox"/> No	Tape up/use insect repellent <input type="checkbox"/> Yes <input type="checkbox"/> No
First aid kit <input type="checkbox"/> Yes <input type="checkbox"/> No	Fire extinguisher <input type="checkbox"/> Yes <input type="checkbox"/> No
Safety shower/eyewash <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Other <input type="checkbox"/> Yes <input type="checkbox"/> No

Modifications/Exceptions: _____

VIII. Site Preparation

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

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

X. Special instructions, precautions: _____

Permit Issued by: _____ Permit Accepted by: _____