

N00213.AR.001382
NAS KEY WEST
5090.3a

HEALTH AND SAFETY PLAN FOR GROUNDWATER SAMPLING WITH TRANSMITTAL NAS
KEY WEST FL
5/11/2012
TETRA TECH



AIK-12-0102

May 11, 2012

Project Number 02256

via FedEx

Mark Davidson
BRAC Environmental Coordinator
BRAC Program Management Office Southeast
4130 Faber Place Drive, Suite 202
North Charleston, SC 29405

Reference: CLEAN Contract No. N62467-04-D-0055
Contract Task Order No. 0155

Subject: Health and Safety Plan for Groundwater Sampling, Rev. 0, Air Station, Key West, Florida

Dear Mr. Davidson:

I have enclosed a Living CD for the Health and Safety Plan for Groundwater Sampling, Rev. 0, Naval Air Station, Key West, Florida. These files are being sent to you via *FedEx* to meet TtNUS's contractual obligation under CTO 0155. I am not expecting any comments on the HASP.

Please call me at (803) 641-4943, if you have any questions regarding the HASP.

Sincerely,

A handwritten signature in black ink, appearing to read 'C. M. Bryan'.

C. M. Bryan
Project Manager

CMB:spc

c: Mr. R. Courtright, NAS Key West (Hard Copy/CD)
Mr. E. Barham, NAS Key West (Letter Only)
Mr. R. Demes, NAS Key West (Letter Only)
File 02256-3.1

Comprehensive Long-term Environmental Action Navy

CONTRACT NUMBER N62467-04-D-0055



Health and Safety Plan For Groundwater Sampling

Naval Air Station Key West
Key West, Florida

Contract Task Order 0155

April 2012



BRAC Program Management Office Southeast
4130 Faber Place Drive, Suite 202
North Charleston, South Carolina 29405

HEALTH AND SAFETY PLAN

FOR

GROUNDWATER SAMPLING

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

**COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY CONTRACT**

**Submitted to:
BRAC Program Management Office Southeast
4130 Faber Place Drive, Suite 202
North Charleston, South Carolina 29405**

**Submitted by:
Tetra Tech
661 Andersen Drive
Foster Plaza 7
Pittsburgh, Pennsylvania 15220**

**CONTRACT NO. N62467-04-D-0055
CONTRACT TASK ORDER 0155**

APRIL 2012

PREPARED UNDER THE SUPERVISION OF:

**CHUCK BRYAN
TASK ORDER MANAGER
TETRA TECH
AIKEN, SOUTH CAROLINA**

APPROVED FOR SUBMISSION BY:



**MATTHEW M. SOLTIS, CH, CSP
CLEAN HEALTH & SAFETY MANAGER
TETRA TECH
PITTSBURGH, PENNSYLVANIA**

TABLE OF CONTENTS

SECTION	PAGE
1.0 INTRODUCTION.....	1-1
1.1 AUTHORITY.....	1-1
1.2 KEY PROJECT PERSONNEL AND ORGANIZATION	1-1
1.3 SITE INFORMATION AND PERSONNEL ASSIGNMENTS.....	1-3
2.0 EMERGENCY ACTION PLAN.....	2-1
2.1 INTRODUCTION.....	2-1
2.2 EMERGENCY PLANNING.....	2-1
2.3 EMERGENCY RECOGNITION AND PREVENTION.....	2-2
2.3.1 Recognition	2-2
2.3.2 Prevention	2-3
2.4 EVACUATION ROUTES, PROCEDURES, AND PLACES OF REFUGE.....	2-3
2.5 EMERGENCY CONTACTS	2-4
2.6 EMERGENCY ALERTING AND ACTION/RESPONSE PROCEDURES	2-6
2.7 PPE AND EMERGENCY EQUIPMENT	2-6
2.8 DECONTAMINATION PROCEDURES / EMERGENCY MEDICAL TREATMENT	2-6
2.9 INJURY/ILLNESS REPORTING	2-7
2.9.1 TOTAL Incident Reporting System	2-7
2.10 DRILL/INCIDENT AFTER ACTION CRITIQUE	2-8
2.11 EMERGENCY ROUTE TO HOSPITAL.....	2-9
3.0 SITE BACKGROUND.....	3-1
3.1 TRUMAN ANNEX.....	3-1
4.0 SCOPE OF WORK	4-1
5.0 IDENTIFYING AND COMMUNICATING TASK-SPECIFIC HAZARDS AND SAFE WORK PRACTICES.....	5-2
5.1 GENERAL SAFE WORK PRACTICES.....	5-2
6.0 HAZARD ASSESSMENT AND CONTROLS.....	6-1
6.1 CHEMICAL HAZARDS.....	6-1
6.1.1 Chloromethane.....	6-1
6.1.2 Inhalation.....	6-1
6.1.3 Ingestion and Skin Contact	6-2
6.2 PHYSICAL HAZARDS	6-2
6.2.1 Slips, Trips, and Falls	6-3
6.2.2 Strain/Muscle Pulls from Heavy Lifting.....	6-3
6.2.3 Heat Stress.....	6-3
6.2.4 Pinch/Compression Points	6-4
6.2.5 Vehicular and Equipment Traffic.....	6-4
6.2.6 Inclement Weather	6-4
6.3 NATURAL HAZARDS	6-4
6.3.1 Insect/Animal Bites and Stings.....	6-5
6.3.2 Inclement Weather.....	6-7
7.0 AIR MONITORING.....	7-1
7.1 INSTRUMENTS AND USE	7-1
7.1.1 Action Level.....	7-1
7.2 INSTRUMENT MAINTENANCE AND CALIBRATION.....	7-1
7.3 DOCUMENTING INSTRUMENT READINGS.....	7-2

TABLE OF CONTENTS (Continued)

SECTION	PAGE
8.0 TRAINING/MEDICAL SURVEILLANCE REQUIREMENTS.....	8-1
8.1 INTRODUCTORY/REFRESHER/SUPERVISORY TRAINING	8-1
8.2 SITE-SPECIFIC TRAINING	8-1
8.3 MEDICAL SURVEILLANCE	8-1
9.0 SITE CONTROL	9-1
9.1 EXCLUSION ZONE.....	9-1
9.1.1 Exclusion Zone Boundary Clearances	9-1
9.2 CONTAMINATION REDUCTION ZONE	9-2
9.3 SUPPORT ZONE.....	9-2
9.4 ACTIVITY HAZARD ANALYSIS.....	9-2
9.5 SITE VISITORS.....	9-2
9.6 SITE SECURITY	9-3
9.7 BUDDY SYSTEM.....	9-4
9.8 MATERIAL SAFETY DATA SHEET (MSDS) REQUIREMENTS.....	9-4
9.9 COMMUNICATION	9-4
10.0 SPILL CONTAINMENT PROGRAM.....	10-1
10.1 SCOPE AND APPLICATION	10-1
10.2 POTENTIAL SPILL AREAS	10-1
10.3 LEAK AND SPILL DETECTION.....	10-1
10.4 PERSONNEL TRAINING AND SPILL PREVENTION	10-2
10.5 SPILL PREVENTION AND CONTAINMENT EQUIPMENT.....	10-2
10.6 SPILL CONTROL PLAN.....	10-2
11.0 CONFINED-SPACE ENTRY.....	11-1
12.0 MATERIALS AND DOCUMENTATION.....	12-1
12.1 MATERIALS TO BE POSTED OR MAINTAINED AT THE SITE.....	12-1
13.0 ACRONYMS / ABBREVIATIONS.....	13-1
ATTACHMENT I – MEDICAL DATA SHEET	
ATTACHMENT II – INCIDENT REPORT FORM	
ATTACHMENT III – ACTIVITY HAZARD ANALYSIS	
ATTACHMENT IV – OSHA POSTER	

TABLE OF CONTENTS (CONTINUED)

TABLES

<u>NUMBER</u>		<u>PAGE</u>
2-1	Emergency Reference NAS Key West, Florida.....	2-5
6-1	Comparison of Worst Case Air Concentrations with Current Occupational Exposure Limits.....	6-1
6-2	Tropical Storm/Hurricane Rating Scale.....	6-8
6-3	Tropical Storm/Hurricane Watch and Warning	6-9

FIGURES

<u>NUMBER</u>		<u>PAGE</u>
2-1	Hospital Route from Truman Annex.....	2-9
7-1	Documentation of Field Calibration	7-3
8-1	Site-Specific Training Documentation	8-3

1.0 INTRODUCTION

The objective of this Health and Safety Plan (HASP) is to provide the minimum safety practices and procedures to Tetra Tech personnel conducting groundwater sampling, monitoring well installation and associated activities at Naval Air Station (NAS) Key West, located in Key West, Florida.

This HASP has been prepared using the latest available information regarding known or suspected chemical contaminants and potential and foreseeable physical hazards associated with the planned work at NAS Key West. This HASP has been designed to be used in accordance with the Tetra Tech Health and Safety Guidance Manual. The Guidance Manual provides detailed information pertaining to procedures to be performed on site as directed by the HASP, as well as Tetra Tech standard operating procedures.

This HASP has been written to support proposed tasks and techniques associated with the scope of work as presented in Section 4.0. Should the proposed work site conditions and/or suspected hazards change, or if new information becomes available, this document will be modified. Changes to the HASP will be made with the approval of the Tetra Tech CLEAN Health and Safety Manager (HSM) and the Task Order Manager (TOM). The TOM will notify affected personnel of changes.

The elements of this HASP are in compliance with the requirements established by OSHA 29 Code of Federal Regulations (CFR) 1910.120, "Hazardous Waste Operations and Emergency Response" (HAZWOPER). The information contained in this plan, as well as policies on conducting on site operations, has been obtained from the Tetra Tech Health and Safety Program and NAS Key West policies and procedures.

1.1 AUTHORITY

This work is authorized under the Comprehensive Long - Term Environmental Action Navy (CLEAN) contract, administered through the U.S. Navy Southeastern Naval Facilities Engineering Command, as defined under Contract Number N62467-04-D-0055; Contract Task Order Number 0155.

1.2 KEY PROJECT PERSONNEL AND ORGANIZATION

This section defines responsibilities for site safety and health for Tetra Tech and subcontractor employees conducting environmental sampling and other field activities. Personnel assigned to these positions shall exercise the primary responsibility for the onsite health and safety. These persons will be the primary

point of contact for any questions regarding the safety and health procedures and the selected control measures.

- The Tetra Tech TOM is responsible for the overall direction and implementation of health and safety for this work.
- The Tetra Tech Field Operations Leader (FOL) is responsible for implementation of this HASP. The FOL manages field activities, executes the work plan, and enforces safety procedures, as applicable to the work plan. Specifically, the FOL will:
 - Verify training and medical status of on-site personnel in relation to site activities.
 - Assist and represent Tetra Tech with emergency services (if needed)
 - Provide elements of site-specific training for onsite personnel.
- The Tetra Tech Site Safety Officer or their representative supports the FOL concerning the aspects of health and safety including, but not limited to:
 - Coordinating the health and safety activities
 - Selecting, applying, inspecting, and maintaining personal protective equipment
 - Establishing work zones and control points
 - Implementing air monitoring procedures
 - Implementing hazard communication, respiratory protection, and other associated safety and health programs
 - Coordinating emergency services
 - Providing elements of site-specific training
- Compliance with these requirements is monitored by the Project Health and Safety Officer (PHSO) and is coordinated through the HSM.

1.3 SITE INFORMATION AND PERSONNEL ASSIGNMENTS

Site Name: Various Sites Key NAS Key West **Address:** Key West, Florida
Southeast NAVFAC EIC: Mark Davidson **Phone Number:** (843) 743-2135
Site Point of Contact: Mr. Robert Courtright **Phone Number:** (305) 293-2881

Purpose of Site Visit: Tetra Tech will conduct field activities associated with groundwater sampling

Proposed Dates of Work: April 2012 through completion

Project Team:

Tetra Tech Personnel:

Chuck Bryan
Gary Braganza
Matthew M. Soltis, CIH, CSP
James K. Laffey
Gary Braganza

Discipline/Tasks Assigned:

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

Subcontractor Personnel:

Discipline/Tasks Assigned:

Hazard Assessment (for purposes of 29 CFR 1910.132) for HASP preparation has been conducted by:

Prepared by: James K. Laffey

2.0 EMERGENCY ACTION PLAN

2.1 INTRODUCTION

This section has been developed as part of a planning effort to direct and guide field personnel in the event of an emergency. However, given the nature and scope of planned site activities, significant emergency situations are unlikely. In the event of an emergency, Tetra Tech personnel will provide emergency response support only to the capabilities of onsite personnel. Emergency situations that are beyond the capabilities of onsite Tetra Tech personnel will require assistance from outside emergency responders. In the event of emergencies that are beyond the capabilities of onsite personnel, an evacuation will be initiated. In an evacuation, site personnel will move to a safe place of refuge and the appropriate emergency response agencies will be notified. 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 areas of site operations, which ensures adequate emergency response time. This emergency action plan conforms to the requirements of OSHA Standard 29 CFR 1910.38(a), as allowed in OSHA 29 CFR 1910.120(I)(1)(ii).

Tetra Tech personnel will provide incipient action measures for incidents such as:

- Fire and spill prevention and response
- Removal of personnel from emergency situations
- Provision of initial medical support for injury/illnesses requiring basic first-aid
- Provision of site control and security measures, as necessary

2.2 EMERGENCY PLANNING

Through the initial hazard/risk assessment effort, there is very minor potential for injury or illnesses resulting from exposure to chemical, physical, or other hazards, and subsequently little likelihood of emergency situations. To further minimize or eliminate potential emergency situations, pre-emergency planning activities associated with this project will be implemented. The FOL is responsible for:

- Coordinating response actions with NAS Key West Emergency Services personnel to ensure that Tetra Tech emergency action activities are compatible with existing facility emergency response procedures.

- 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.

- 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.

2.3 EMERGENCY RECOGNITION AND PREVENTION

2.3.1 Recognition

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

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

2.3.2 Prevention

Tetra Tech and subcontractor 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, personnel will immediately stop activities and report to the designated safe place of refuge unless doing so would pose additional risks. When evacuation to the primary place of refuge is not possible, personnel will proceed to a designated alternate location and remain until further notification from the Tetra Tech FOL. Safe places of refuge will be identified prior to the commencement of site activities by the SSO and will be conveyed to personnel as part of the pre-activities training session. This information will be reiterated during daily safety meetings. Whenever possible, the safe place of refuge will also serve as the telephone communications point for that area. During an evacuation, personnel will remain at the refuge location until directed otherwise by the Tetra Tech FOL or the on-site Incident Commander of the Emergency Response Team. The FOL or the SSO will perform a head count at this location to account for and to confirm the location of site personnel. Emergency response personnel will be immediately notified of any unaccounted personnel. The SSO will document the names of personnel onsite (on a daily basis) in the site Health and Safety Logbook. This information will be utilized to perform the head count in the event of an emergency.

Evacuation procedures will be discussed during the pre-activities training session, prior to the initiation of project tasks. Evacuation routes from the site and safe places of refuge are dependent upon the location at which work is being performed and the circumstances under which an evacuation is required. Additionally, site location and meteorological conditions (i.e., wind speed and direction) may dictate evacuation routes. As a result, assembly points will be selected and communicated to the workers relative to the site location where work is being performed. Evacuation should take place in an upwind direction from the site.

2.5 EMERGENCY CONTACTS

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

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

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

**TABLE 2-1
EMERGENCY REFERENCE
NAS KEY WEST, FLORIDA**

AGENCY	TELEPHONE
Key West Police/Rescue Services	911
Hospital: Lower Florida Keys Medical Center	(305) 294-5531
Base Police	(305) 293-2114
Base Fire Department Boca Chica	(305) 293-3333
NAS Key West Point of Contact Robert Courtright	(305) 293-2881
Base Officer of the Day (OOD)	(305) 293-2971
Poison Control Center	(800) 222-1222
Sunshine State One-Call (utility clearance)	(800)-432-4770
Chemtrec	(800) 424-9300
National Response Center	(800) 424-8802
Tetra Tech, Aiken Office	(803) 649-7963
Task Order Manager Chuck Bryan	(803) 649-7963 x345
Field Operations Leader TBD	TBD
Tetra Tech, Pittsburgh Office	(412) 921-7090
Health and Safety Manager Matthew M. Soltis	(412) 921-8912
Project Health and Safety Officer James K. Laffey	(412) 921-8678

2.6 EMERGENCY ALERTING AND ACTION/RESPONSE PROCEDURES

Tetra Tech personnel will be working in close proximity to each other at NAS Key West and other work sites associated with the field activities. As a result, hand signals, voice commands, and line of site communication will be sufficient to alert site personnel of an emergency.

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

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

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

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

2.7 PPE AND EMERGENCY EQUIPMENT

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

2.8 DECONTAMINATION PROCEDURES / EMERGENCY MEDICAL TREATMENT

During any site evacuation, decontamination procedures will be performed only if doing so does not further jeopardize the welfare of site workers. Decontamination will be postponed if the incident warrants immediate evacuation. However, it is unlikely that an evacuation would occur which would require workers to evacuate the site without first performing the necessary decontamination procedures.

Tetra Tech personnel will perform rescue operations from emergency situations and may provide initial medical support for injury/illnesses requiring only "Basic First-Aid" level support, and only within the limits of training obtained by site personnel. Basic First-Aid is considered treatment that can be rendered by a trained first aid provider at the injury location and not requiring follow-up treatment or examination by a physician (for example; minor cuts, bruises, stings, scrapes, and burns). Not included as Basic First-Aid are second or third degree burns, cuts, lacerations requiring stitches or butterfly bandaging, heat exhaustion, severe poisonous plant or insect bite reactions.

Based on distance and time required until medical assistance can be obtained, Tetra Tech is required to have at least two CPR/First Aid trained personnel onsite during these activities. Personnel providing medical assistance are required to be trained in First-Aid and in the requirements of OSHA's Bloodborne Pathogen Standard (29 CFR 1910.1030). Medical attention above First-Aid level support will require assistance from the designated emergency response agencies.

2.9 INJURY/ILLNESS REPORTING

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

2.9.1 TOTAL Incident Reporting System

TOTAL is Tetra Tech's new online incident reporting system. Site employees can use TOTAL to directly report health and safety incidents, notify key personnel, and initiate the process for properly investigating and addressing the causes of incidents, including near-miss events.

An incident is considered any unplanned event. It may include several types of near misses, events where no loss was incurred, or incidents that resulted in injuries or illness, property or equipment damage, chemical spills, fires, or damage to motor vehicles. Some examples of incidents are as follows:

- Work-related injury or illness
- Suspected hazardous substance exposure over the allowable exposure limit
- Automobile or vehicle-related incidents
- Significant property or equipment damage
- An unplanned fire or explosion
- An unplanned spill or release (including air releases) to the environment
- A permit or permit equivalent exceedance
- Unexpected contact with damage to aboveground or below ground utilities

A near miss incident is described as an undesired event or workplace condition which under slightly different circumstances had a reasonable probability of resulting in one of the outcomes described above. Some examples of near miss incidents are as follows:

- Tools falling from overhead work near workers below
- Unexpected contact without damage to aboveground or below ground utilities
- Discovery of an unknown and potentially hazardous material, or anomaly

All incidents including near-miss incidents involving Tetra Tech personnel or Tetra Tech subcontractors under Tetra Tech's immediate direction shall be reported and investigated.

TOTAL looks like the incident reporting form in Attachment II. TOTAL is an intuitive system that will guide you through the necessary steps to report an incident within 24 hours of its occurrence. TOTAL is a tool for Tetra Tech to better track incidents, analyze root causes, implement corrective action plans, and share lessons learned.

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

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

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

2.10 DRILL/INCIDENT AFTER ACTION CRITIQUE

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

2.11 EMERGENCY ROUTE TO HOSPITAL

The closest hospital to NAS Key West is Lower Florida Keys Health System. A map showing the route to the hospital is in Figure 2-1. Directions are as follows:

Lower Florida Keys Medical Center
5900 College Road, Key West Florida
305-294-5531

FIGURE 2-1
HOSPITAL ROUTE FROM TRUMAN ANNEX

DISTANCE: 5.7 MILES

Go Southwest on Truman Avenue towards Fort Street

- Turn right onto Fort Street
- Turn right onto Olivia Street
- Turn right onto Emma Street
- Turn left onto Julia Street
- Turn left onto Duval Street
- Turn right onto Truman Avenue
- Truman Avenue becomes N Roosevelt Boulevard
- Turn left onto US-1 N
- Turn left onto College Road

Short distance

- 0.1 miles
- 0.1 miles
- 0.1 miles
- 0.2 miles
- Short distance
- 0.8 miles
- 2.5 miles
- 1.1 miles
- 0.5 miles

Hospital is on the left.



3.0 SITE BACKGROUND

NAS Key West is in southern Monroe County, Florida. The U.S. Navy manages 6,323 acres of land divided into 20 separate tracts in the lower Florida Keys, concentrated around Key West and Boca Chica Key. The Naval Facility 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; counter narcotics air surveillance operations, a weather service, and several other activities on Key West. In addition to the Naval activities and units, other Department of Defense (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 or 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 is connected to the mainland by the Overseas Highway (U.S. Highway No. 1). The topography at the NAS Key West is generally flat.

3.1 TRUMAN ANNEX

Truman Annex is a neighborhood in Key West, Florida. It is the part of the island that is west of Whitehead Street and part of Naval Station Key West.

4.0 SCOPE OF WORK

This section of the HASP identifies the planned site activities that are to be conducted as part of the field activities. Tasks that will be performed at this site are:

- Mobilization/demobilization
- Groundwater Sampling
- Decontamination of personnel and equipment
- IDW management

Any additionally tasks not identified above will be considered a change in scope requiring modification of this document. Requested modifications to this document will be submitted to the HSM by the TOM or a designated representative.

5.0 IDENTIFYING AND COMMUNICATING TASK-SPECIFIC HAZARDS AND SAFE WORK PRACTICES

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

5.1 GENERAL SAFE WORK PRACTICES

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

- Eating, drinking, chewing gum or tobacco, taking medication, or smoking in contaminated or potentially contaminated areas or where the possibility for the transfer of contamination exists is prohibited.
- Wash hands and face thoroughly upon leaving a contaminated or suspected contaminated area.
- If a source of potable water is not available at the work site that can be used for hands-washing, the use of waterless hands cleaning products will be used, followed by actual hands-washing as soon as practicable upon exiting the site.
- Avoid contact with potentially contaminated substances including puddles, pools, mud, or other such areas.
- Avoid, kneeling on the ground or leaning or sitting on equipment.
- Keep monitoring equipment away from potentially contaminated surfaces.
- Plan and mark entrance, exit, and emergency evacuation routes.
- Rehearse unfamiliar operations prior to implementation.

- Buddies should maintain visual contact with each other and with other on-site team members by remaining in close proximity to assist each other in case of emergency.
- Establish appropriate safety zones including support, contamination reduction, and exclusion zones.
- Minimize the number of personnel and equipment in contaminated areas (such as the exclusion zone).
- Non-essential vehicles and equipment should remain within the support zone.
- Establish appropriate decontamination procedures for leaving the site.
- Immediately report all injuries, illnesses, and unsafe conditions, practices, and equipment to the SSO.
- Observe co-workers for signs of toxic exposure and heat or cold stress.

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

6.0 HAZARD ASSESSMENT AND CONTROLS

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

6.1 CHEMICAL HAZARDS

Based upon limited available data from previous site investigations, the primary site contaminants of concern (COCs) from an occupational health perspective is the volatile organic compound chloromethane also known as methyl chloride. It is a possibility that airborne concentrations could approach current occupational exposure limits (OELs). Table 6-1 below summarizes the COCs, their respective OELs, and possible worst case scenario concentrations.

**TABLE 6-1
COMPARISON OF WORST-CASE PCE AIR CONCENTRATIONS
WITH CURRENT OCCUPATIONAL EXPOSURE LIMITS**

Contaminant of Concern	Highest Concentration Previously Detected in Groundwater	Worst-Case Air Concentration That Could Be Encountered	Current OSHA PEL And ACGIH TLV
Chloromethane (methyl chloride)	118	20.61 ppm	TWA ₈ : 50 ppm STEL: 100 ppm

Table Notes:

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

ACGIH & NIOSH STEL: Concentration in air that is not to be exceeded for more than 15 minutes more than 4 times per day.

6.1.1 Chloromethane

Acute (short-term) exposure to high concentrations of methyl chloride in humans has caused severe neurological effects. Methyl chloride has also caused effects on the heart rate, blood pressure, liver, and kidneys in humans. Chronic (long-term) animal studies have shown liver, kidney, spleen, and central nervous system (CNS) effects. Inhalation studies have demonstrated that methyl chloride causes reproductive effects in male rats, with effects such as testicular lesions and decreased sperm production.

6.1.2 Inhalation

From a worst-case scenario, the above chemical concentrations immediately above a captured air phase above contaminated media (such as in the head space of a monitoring well) could reach concentrations that exceed permissible limits. In addition, it is important to recognize the following:

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

As a result of these factors, it is very unlikely that workers participating in this activity will encounter any airborne concentrations of benzene that would represent an inhalation exposure concern. To monitor this route, real-time direct reading monitoring instruments will be used (as described in section 7.0). This will be performed during excavation tasks, as these tasks are the most likely to involve encountering/releasing any benzene into the airphase.

6.1.3 Ingestion and Skin Contact

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

- No hand-to-mouth activities on site (eating, drinking, smoking, etc.)
- Washing hands upon leaving the work area and prior to performing any hand to mouth activities
- Wearing surgeon's-style gloves whenever handling potentially-contaminated media, including groundwater, bailing tools, and sample containers.

6.2 PHYSICAL HAZARDS

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

- Slip, trips, and falls
- Strain/muscle pulls from heavy lifting
- Heat Stress
- Pinch/compression points
- Natural hazards (snakes, ticks, poisonous plants, etc.)
- Vehicular and equipment traffic
- Inclement weather

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

6.2.1 Slips, Trips, and Falls

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

6.2.2 Strain/Muscle Pulls from Heavy Lifting

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

6.2.3 Heat Stress

Because of the geographical location of the planned work, the likely seasonal weather conditions that will exist during the planned schedule, and the physical exertion that can be anticipated with some of the planned tasks, it will be necessary for the field team to be aware of the signs and symptoms and the measures appropriate to prevent heat stress. This is addressed in detail in Section 4.0 of the Tetra Tech Health and Safety Guidance Manual, which the SSO is responsible for reviewing and implementing as appropriate on this project.

In general, early signs of heat-related disorders include heat rash, cramps, heavy sweating which may be followed by the complete shutdown of a person's ability to sweat, pale/clammy skin, headaches, dizziness, in-coordination, and other maladies. To prevent heat stress disorders, the following preventive measures are to be implemented by the SSO:

- When possible, schedule the most physically-demanding tasks so that they are performed during cooler periods of the day such as early morning or late afternoon
- Educate the field staff in heat stress signs and symptoms so that they can monitor themselves and their co-workers

- Schedule frequent breaks during the hottest parts of the day (such as a few minutes each hour). Breaks should be in shaded areas, and in a location where workers can remove PPE, wash their hands, and drink fluids
- Drinking fluids should be cool and non-caffeinated. Sports-drinks with electrolytes are acceptable provided that they do not contain alcohol. Water is also acceptable.

For more information on heat stress recognition and prevention, consult section 4.0 of the Tetra Tech Health and Safety Guidance Manual.

6.2.4 Pinch/Compression Points

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

6.2.5 Vehicular and Equipment Traffic

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

6.2.6 Inclement Weather

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

6.3 NATURAL HAZARDS

Natural hazards such as poisonous plants, bites from poisonous or disease carrying animals or insects (e.g., snakes, ticks, mosquitoes) are often prevalent at sites that are being investigated as part of hazardous waste site operations. Given the geographic location and the environment, alligators may also be potentially present at the NAS Key West facility. To minimize the potential for site personnel to

encounter these hazards, nesting areas in and about work areas will be avoided to the greatest extent possible. Work areas will be inspected to look for any evidence that dangerous animals may be present. Based on the planned location for the work covered by this HASP, encountering alligators is not a likely probability.

During warm months (spring through early fall), tick-borne Lyme Disease may pose a potential health hazard. The longer a disease carrying tick remains attached to the body, the greater the potential for contracting the disease. Wearing long sleeved shirts and long pants (tucked into boots and taped) will prevent initial tick attachment, while performing frequent body checks will help prevent long term attachment. Site first aid kits should be equipped with medical forceps and rubbing alcohol to assist in tick removal. For information regarding tick removal procedures and symptoms of exposure, consult Section 4.0 of the Health and Safety Guidance Manual.

Contact with poisonous plants and bites or stings from poisonous insects are other potential natural hazards. Long sleeved shirts and long pants (tucked into boots), and avoiding potential nesting areas, will minimize the potential for exposure. Additionally, insect repellents may be used by site personnel. Personnel who are allergic to stinging insects (such as bees, wasps and hornets) must be particularly careful since severe illness and death may result from allergic reactions. As with any medical condition or allergy, information regarding the condition must be listed on the Medical Data Sheet (see Attachment I of this HASP), and the FOL or SSO notified.

In general, avoidance of areas of known infestation or growth will be the preferred exposure control for insects/animals and poisonous plants. Specific discussion on principle hazards of concern follows.

6.3.1 Insect/Animal Bites and Stings

Various insects and animals may be present and should be considered.

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 (formic acid) 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 see a physician. 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 the ants defend it by swarming out and over the mound, even running up grass blades and sticks.

Also, areas to be investigated could be prime nesting and/or hiding locations for snakes and other insects. 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.

Alligators

Alligators live in every Florida County but are most common in the major river drainage basins and large lakes in the central and southern portions of the state. They also can be found in marshes, swamps, ponds, drainage canals, phosphate-mine settling ponds, and ditches. Alligators are tolerant of poor water-quality and occasionally inhabit brackish marshes along the coast. A few even venture into salt water.

Mature alligators seek open water areas during the November-to-May courtship and breeding season. After mating, the females move into marsh areas to nest in June and early July where they remain until the following spring. Males generally prefer open and deeper water year-round. Alligators less than four feet long typically inhabit the marshy areas of lakes and rivers. Dense vegetation in these habitats provides protective cover and many of the preferred foods of young alligators.

- Most human attacks associated with alligators occur when they have been fed by humans or when defending their nests.
- Under no circumstances should you approach an alligator closely. They are quite agile, even on land. As with any wild animal, alligators merit a measure of respect.
- Alligators are classified as a threatened species and thus enjoy the protection of state and federal law. Only representatives of the Florida Game and Fresh Water Fish Commission are empowered to handle nuisance alligators.
- It is illegal to feed, tease, harass, molest, capture or kill alligators.
- If a serious problem does exist, contact the Florida Game and Fresh Water Fish Commission.

6.3.2 Inclement Weather

Project tasks under this Scope of Work will be performed outdoors and near water. 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.

Tropical Storms and Hurricanes

As Florida is a tropical storm, hurricane prone area, the following information is supplied to explain the potential severity of these natural hazards. The decision to curtail operations and evacuate the area should be made by the FOL, PM, and the HSM.

During the early summer to late fall months, typically from the first of June through the end of November, disturbances migrating off the West Coast of Africa move into the Atlantic Ocean and develop into tropical cyclones known as tropical storms and hurricanes. Many of these cyclones become strong enough to threaten life and property along the Eastern Seaboard and Gulf Coast. There are three main threats associated with tropical storms and hurricanes:

- High winds
- Excessive rainfall
- Storm surge

The impacts of high winds and excessive rainfall occur hours, maybe days, before the tropical storm or hurricane makes landfall. However, the storm surge accompanies the storm or hurricane at the time that landfall occurs.

High Winds

Sustained winds vary greatly from storm to storm, but can range from 39 to 73 miles per hour (wind speeds associated with a tropical storm) to greater than 74 miles per hour (minimal wind speed for a Category 1 hurricane). Table 6-2 compares the type of storm or hurricane and the corresponding wind speed.

**TABLE 6-2
TROPICAL STORM/HURRICANE RATING SCALE**

TYPE	CATEGORY*	WINDS (MPH)
Tropical Depression	NA	>35-38
Tropical Storm	NA	39 – 73
Hurricane	1	74 – 95
Hurricane	2	96 – 110
Hurricane	3	111 – 130
Hurricane	4	131 – 155
Hurricane	5	>155

Based on the Saffir-Simpson scale
NA – Not Applicable

In addition to strong winds, there is the threat of debris (i.e. building material, trees, etc.) becoming airborne projectiles as they are carried by the high winds. Thunderstorms and tornadoes embedded within the tropical storm or hurricane can further increase the wind speeds on a localized level.

Excessive Rainfall

Heavy rains associated with tropical storms and hurricanes also vary greatly from storm to storm. On average, an inch of rainfall an hour is not uncommon with major hurricanes, somewhat lesser amounts with tropical storms. However, the primary threat is not the intensity of rain, but the duration of rainfall. Since many tropical storms and hurricanes are slow-movers, they are capable of producing sustained heavy rainfall over a long period of time. It is not uncommon for an area to receive nearly 20 inches of rain in 24 hours. Under these conditions, street; stream and creek flooding is inevitable only to be exacerbated by locally heavier rains from thunderstorms.

Storm Surge

The storm surge is an abnormal rise in sea level accompanying a hurricane or tropical storm. The height of the storm surge (usually measured in feet) is the difference in sea level from the observed level (during the storm) and the level that would have occurred in the absence of the storm or hurricane. The more intense the storm or hurricane the higher the storm surge. Storm surges become even higher if they occur during periods of high tide. Table 6-3 defines some of the terminology and possible calls to action regarding tropical cyclones:

**TABLE 6-3
 TROPICAL STORM/HURRICANE
 WATCH AND WARNING**

STORM DESCRIPTION	DEFINITION	CALL TO ACTION
Tropical Storm Watch	Tropical storm conditions are possible in the specified area of the watch, usually within 36 hours	Weather conditions should be monitored for further advisories. Prepare for possible evacuation by local officials
Tropical Storm Warning	Tropical storm conditions are expected in the specified area of the warning, usually within 24 hours.	Work should be suspended in areas where lightning, high winds and rainfall could pose a threat to life. Mandatory evacuations may be enforced by local officials.
Hurricane Watch	Hurricane conditions are possible in the specified area of the watch, usually within 36 hours.	Weather conditions should be monitored for further advisories. Prepare for possible evacuation by local officials
Hurricane Warning	Hurricane conditions are expected in the specified area of the warning, usually within 24 hours.	Mandatory evacuations will most likely be enforced by local officials.

A NOAA Weather Radio is the best means to receive watches and warnings from the National Weather Service. The National Weather Service continuously broadcasts updated hurricane advisories that can be received by widely available NOAA Weather Radios.

7.0 AIR MONITORING

As a precautionary measure to assure that such exposures are avoided and documented, a direct reading instrument will be used to monitor worker exposures to chemical hazards present at the site. For this project, based on the properties of the primary contaminants of concern, a Photoionization Detector (PID) will be used to monitor the air.

7.1 INSTRUMENTS AND USE

Instruments will be used primarily to monitor source points and worker breathing zone areas, while observing instrument action levels. The SSO shall obtain and document the daily background (BG) reading at an upwind, unaffected area and observe for readings above that BG level. The SSO shall monitor source areas (e.g., auger bore hole locations and above collected soil samples) for the presence of any reading above the daily-established BG level. If elevated readings are observed, the SSO shall monitor the workers breathing zone (BZ) areas with the PID with a lamp strength of 11.7eV.

7.1.1 Action Level

Workers must limit exposure to a maximum of or 55 ppm (PID) in the BZ for no more than 4 exposures of 5 minutes total in an 8 hour work day. If sustained readings above 55 ppm are measured, the following process will be followed.

- The SSO shall stop work and retreat upwind to a safe, unaffected area, where they will remain until further directed by the SSO.
- The SSO shall allow at least 5 minutes to pass so that the work area can ventilate, and will then re-approach the work area while continuously monitoring the BZ areas.

Only when BG levels are regained in BZ areas will work be permitted to resume. If BG levels are not regained, the SSO will contact the HSM for additional direction.

7.2 INSTRUMENT MAINTENANCE AND CALIBRATION

Hazard monitoring instruments will be maintained and pre-field calibrated by the equipment provider (i.e., rental agency used). Operational checks and field calibration will be performed on site instruments each day prior to their use. Field calibration will be performed on instruments according to manufacturer's recommendations. These operational checks and calibration efforts will be performed in a manner that complies with the employees health and safety training, the manufacturer's recommendations, and with

the applicable manufacturer standard operating procedure (which the SSO must assure are included with the instrument upon its receipt onsite). Field calibration efforts must be documented. Figure 7-1 is provided for documenting these calibration efforts. This information may instead be recorded in a field operations logbook, provided that the information specified in Figure 7-1 is recorded. This required information includes the following:

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

7.3 DOCUMENTING INSTRUMENT READINGS

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

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

8.0 TRAINING/MEDICAL SURVEILLANCE REQUIREMENTS

This section specifies health and safety training and medical surveillance requirements for both TETRA TECH and subcontractor personnel participating in on-site activities.

8.1 INTRODUCTORY/REFRESHER/SUPERVISORY TRAINING

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

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

8.2 SITE-SPECIFIC TRAINING

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

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

8.3 MEDICAL SURVEILLANCE

Tetra Tech personnel participating in project field activities will have had a board certified occupational health physician conduct a physical examination meeting the requirements of Tetra Tech's medical surveillance program. Documentation for medical clearances will be maintained in the Tetra Tech

Pittsburgh office and made available, as necessary, and will be documented using Figure 8-1 for every employee participating in onsite work activities at this site.

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

9.0 SITE CONTROL

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

9.1 EXCLUSION ZONE

The exclusion zone is considered the area of the site of known or suspected contamination. It is anticipated that the areas around intrusive activities have the potential for contaminants brought to the surface. These areas will be marked and personnel will maintain safe distances. The exclusion zone for this project are those areas of the site where active work (drilling, monitoring well installation, test pitting, and sample collection, etc.) is being performed. Exclusion zones will be delineated as deemed appropriate by the FOL, through means such as erecting visibility fencing, barrier tape, cones, and/or postings to inform and direct personnel. These distances remove personnel from not only potential chemical hazards but also physical hazards potentially associated with these operations including structural component failure, noise, high pressure lines, etc.

9.1.1 Exclusion Zone Boundary Clearances

Personnel working in the exclusion zone are required to wear the required level of PPE as indicated in the Safe Work Permit. If necessary an entry and exit checkpoint will be identified at the periphery of the exclusion zone to regulate movement of personnel and equipment into and out of the zone. Some general Exclusion Zone dimension surrounding operations are as follows:

- Drilling – The height of the mast plus 10-feet, or 35-feet whichever is most conservative.
- Surveying and vegetation removal – 15-feet
- Low pressure decontamination activities – 10 feet
- High Pressure washing and heavy equipment decontamination operations – 35-feet
- IDW Storage area – Authorized personnel only

Exclusion zones may be posted using signs, barrier tape, cones and/or drive poles, and other postings to inform and direct facility site personnel and visitors, as necessary. In the event that exclusion zone cannot

be adequately marked given the configuration work area, Tetra Tech site personnel will be responsible for policing the area and keeping unauthorized personnel from areas where potential exposure concerns may exist.

9.2 CONTAMINATION REDUCTION ZONE

The contamination reduction zone (CRZ) will be a buffer area between the exclusion zone and any area of the site where contamination is not suspected. This area will also serve as a focal point in supporting exclusion zone activities. This area will be delineated using barrier tape, cones, and postings to inform and direct facility personnel. Decontamination will be conducted at a central location. Equipment potentially contaminated will be bagged and taken to that location for decontamination.

9.3 SUPPORT ZONE

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

9.4 ACTIVITY HAZARD ANALYSIS

The work conducted in support of this project will be performed using AHAs (see Attachment III) to guide and direct field crews on a task by task basis. It is the FOL/SSO responsibility to review the AHAs with the task participants as part of a pre-task tail gate briefing session. This ensures that site-specific considerations and changing conditions are appropriately incorporated into the AHA, provide the SSO with a structured format for conducting the tail gate sessions, as well will also give personnel an opportunity to ask questions and make suggestions.

9.5 SITE VISITORS

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

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

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

Once access to the base is obtained, personnel who require site access into areas of ongoing operations will be required to obtain permission from the FOL and the Base Contact. Upon gaining access to the site, site visitors wishing to observe operations in progress will be escorted by Tetra Tech representative and shall be required to meet the minimum requirements discussed below:

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

- The following information is to be recorded in the logbook:
 - Individual's name (proper identification required)
 - Entity they represent
 - Purpose of the visit.

- Site visitors are required to produce the necessary information supporting clearance to the site.
 - This includes information documenting applicable training and medical surveillance as stipulated in Section 8.0 of this document.
 - In addition, to enter the site operational zones during planned activities, site 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 operational zone. Visitors are required to observe the protective equipment and site restrictions in effect at the site at the time of their visit. Visitors entering the exclusion zones during ongoing operations will be accompanied by a Tetra Tech representative. Only visitors meeting these requirements are permitted to enter site operational zones during planned activities.

Any incidence of unauthorized site visitation will cause the termination of on site activities until the unauthorized visitor is removed from the premises. Removal of unauthorized visitors will be accomplished with support from the Base Contact. If necessary, the Base Contact will be notified of any unauthorized visitors.

9.6 SITE SECURITY

Site security will be accomplished using Tetra Tech field personnel. Tetra Tech will retain complete control over active operational areas. As this activity takes place at a Navy facility open to public access, the first line of security will take place using exclusive zone barriers, site work permits, and any existing

barriers at the sites to restrict the general public. The second line of security will take place at the work site referring interested parties to the Base Contact. The Base Contact will serve as a focal point for base personnel, interested parties, and serve as the final line of security and the primary enforcement contact.

9.7 BUDDY SYSTEM

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

9.8 MATERIAL SAFETY DATA SHEET (MSDS) REQUIREMENTS

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

9.9 COMMUNICATION

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

External communication will be accomplished by using cellular telephones at approved locations. External communication will primarily be used for the purpose of resource and emergency resource communications. Prior to the commencement of activities at the site, it is strongly recommended that cell signal strength be checked in the work areas and the relevant project phone numbers are programmed on site worker cell phones. Emergency numbers listed in Table 2-1 should be entered into site cell phones prior the beginning of work. The FOL will determine and arrange for telephone communication procedures.

10.0 SPILL CONTAINMENT PROGRAM

10.1 SCOPE AND APPLICATION

It is anticipated that quantities of bulk potentially hazardous materials (greater than 55-gallons) will not be handled during the site activities. It is possible, however, that as the job progresses disposable PPE and other non-reusable items may be generated. As needed, 55-gallon drums will be used to contain unwanted items generated during sampling activities. The drum(s) will be labeled with the site name and address, the type of contents, and the date the container was filled as well as an identified contact person. As warranted, samples will be collected and analyzed to characterize the material and determine appropriate disposal measures. Once characterized the drum(s) will be removed from the staging area and disposed of in accordance with Federal, State and local regulations. Given the likely solid nature of drum contents, a comprehensive Spill Containment Program is not necessary. The following discussion is provided as contingency information only.

10.2 POTENTIAL SPILL AREAS

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

- Resource deployment
- Waste transfer
- Central staging

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

10.3 LEAK AND SPILL DETECTION

To establish an early detection of potential spills or leaks, periodic inspections by the SSO will be conducted during working hours to visually determine that containers are not leaking. If a leak is detected, the first approach will be to transfer the container contents using a hand pump into a new container. Other provisions for the transfer of container contents will be made and appropriate emergency contacts will be notified, if necessary. In most instances, leaks will be collected and contained using absorbents such as Oil-dry, vermiculite, and/or sand, which may be stored at the staging area in a conspicuously marked drum. This material too, will be containerized for disposal pending analyses. Inspections will be documented in the Project Logbook.

10.4 PERSONNEL TRAINING AND SPILL PREVENTION

Site personnel will be instructed on the procedures for spill prevention, containment, and collection of hazardous materials in the site-specific training. The FOL and/or the 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 the types of equipment that may be maintained at the staging area for the purpose of supporting this Spill Containment Program (depending on the likelihood that drums and/or liquid wastes are generated):

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

10.6 SPILL CONTROL PLAN

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

- Notify the SSO or FOL immediately.
- Take immediate actions to stop the leak or spill by plugging or patching the drum or raising the leak to the highest point. Avoid contacting drum contents. Spread the absorbent material in the area of the spill covering completely.

It is not anticipated that a spill will occur in which the field crews cannot handle. Should this occur; however, the FOL or SSO will notify appropriate emergency response agencies.

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 though work involves excavation of a UST. If excavation and tank removal procedures are followed no confined space entrance will be required. **Therefore, personnel under the provisions of this HASP are not allowed, under any circumstances, to enter confined spaces.**

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

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

12.1 MATERIALS TO BE POSTED OR MAINTAINED AT THE SITE

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

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

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

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

Site Clearance (maintained) - This list is found within the training section of the HASP (see Figure 8-1). It identifies site personnel, dates of training (including site-specific training), and medical surveillance. It

also indicates clearance as well as status. If personnel do not meet these requirements, they do not enter the site while site personnel are engaged in activities.

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

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

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

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

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

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

13.0 ACRONYMS / ABBREVIATIONS

CFR	Code of Federal Regulations
CIH	Certified Industrial Hygienist
CLEAN	Comprehensive Long Term Environmental Action Navy
CRZ	Contamination Reduction Zone
CSP	Certified Safety Professional
dBA	Decibel
DOD	Department of Defense
DOT	Department of Transportation
DRI	Direct Reading Instrument
EPA	Environmental Protection Agency
eV	Electron Volts
FOL	Field Operations Leader
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
HSM	Health and Safety Manager
IDW	Investigation Derived Waste
mg/kg	milligrams per kilogram
MSDS	Material Safety Data Sheet
NAS	Naval Air Station
NIOSH	National Institute for Occupational Safety and Health
OSHA	Occupational Safety and Health Administration (U.S. Department of Labor)
PID	Photo Ionization Detector
PHSO	Project Health and Safety Officer
PPE	Personal Protective Equipment
SSO	Site Safety Officer
TBD	To be determined
TOM	Task Order Manager
UST	Underground Storage Tank
VOCs	Volatile Organic Compounds

ATTACHMENT I
MEDICAL DATA SHEET

MEDICAL DATA SHEET

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

Project: _____

Name: _____ Home Telephone: _____

Address: _____

Age: _____ Height: _____ Weight: _____

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

Phone: _____

Drug or other Allergies: _____

Particular Sensitivities: _____

Do You Wear Contacts? _____

What medications are you presently using? _____

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

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

HIPAA took effect April 14, 2003. Loosely interpreted, HIPAA regulates the disclosure of Protected Health Information (PHI) by the entity collecting that information. PHI is any information about health status (such as that you may report on this Medical Data Sheet), provision of health care, or other information. HIPAA also requires Tetra Tech to ensure the confidentiality of PHI. This Act can affect the ability of the Medical Data Sheet to contain and convey information you would want a Doctor to know if you were incapacitated. So before you complete the Medical Data Sheet understand that this form will not be maintained in a secure location. It will be maintained in a file box or binder accessible to other members of the field crew so that they can accompany an injured party to the hospital.

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

Name (Print clearly)

Signature

Date

ATTACHMENT II
INCIDENT REPORT FORM

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

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

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



INSTRUCTIONS:

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

Incident Report Number: (From the IR Form)

EMPLOYEE INFORMATION

Company Affiliation

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

Full Name

Company (if not Tt employee)

Street Address, City, State and Zip Code

Address Type

Home address (for Tt employees) []

Business address (for subcontractors) []

Telephone Numbers

Work: [] Home: [] Cell: []

Occupation (regular job title)

Department

Was the individual performing regular job duties?

Yes [] No []

Time individual began work

[] AM [] PM [] OR Cannot be determined []

Safety equipment

Provided? Yes [] No []

Used? Yes [] No [] If no, explain why

- Type(s) provided: [] Hard hat [] Protective clothing [] Gloves [] High visibility vest [] Eye protection [] Fall protection [] Safety shoes [] Machine guarding [] Respirator [] Other (list)

NOTIFICATIONS

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

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

Yes [] No []

Date of report

H&S Personnel Notified

Time of report

Time of Report

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

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



INJURY / ILLNESS DETAILS

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

Blank lines for describing the activity before the incident.

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

Blank lines for describing how the injury occurred.

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

Blank lines for describing the object or substance that harmed the individual.

MEDICAL CARE PROVIDED

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

Blank line for describing first aid provided.

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

Table with 2 columns: Name of physician or health care professional, Facility Name, Street Address, City State and Zip Code, Telephone Number, and Type of Care? (with sub-questions about emergency room, hospitalization, death, and compensation claim).

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

SIGNATURES

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

Table for signatures with columns: Affected individual (print), Affected individual (signature), Telephone Number, Date

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



INSTRUCTIONS:

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

Incident Report Number: (From the IR Form)

TYPE OF INCIDENT (Check all that apply)

Property Damage [] Equipment Damage [] Fire or Explosion [] Spill or Release []

INCIDENT DETAILS

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

Response Actions Taken:

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

Agency(s) Contact Name(s)

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

Table with 3 columns: Item, Extent of damage, Estimated repair cost

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

Table with 3 columns: Substance, Estimated quantity and duration, Specify Reportable Quantity (RQ)

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

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

NOTIFICATIONS

Table with 4 columns: Required notifications, Name of person notified, By whom, Date / Time

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

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



INSTRUCTIONS:

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

Form with sections: Incident Report Number, INCIDENT DETAILS (Name of road, County, City, State, Police/Ambulance response), VEHICLE INFORMATION (Vehicle Number 1 - Tetra Tech Vehicle, Vehicle Number 2 - Other Vehicle), and Insurance details.



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



TETRA TECH, INC.

Safety Excellence

TETRA TECH, INC.
INCIDENT FORM IR-C

COMPLETE AND SUBMIT DIAGRAM DEPICTING WHAT HAPPENED

A large, empty rectangular box with a thin black border, intended for drawing a diagram of an incident. The box is currently blank.

ATTACHMENT III
ACTIVITY HAZARD ANALYSIS



ACTIVITY HAZARD ANALYSIS (AHA)

Activity/Work Task: Site Mobilization/Demobilization		Overall Risk Assessment Code (RAC) (Use highest code)			L		
Project Location: NAS Key West, Florida		Risk Assessment Code (RAC) Matrix					
Contract Task Order Number: 155		Severity	Probability				
Date Prepared: April 2012			Frequent	Likely	Occasional	Seldom	Unlikely
Prepared by: J. Laffey		Catastrophic	E	E	H	H	M
Reviewed by: J. Carothers, PhD		Critical	E	H	H	M	L
		Marginal	H	M	M	L	L
		Negligible	M	L	L	L	L
Notes: (Field Notes, Review Comments, etc.)		Step 1: Review each "Hazard" with identified safety "Controls" and determine RAC (See above)					
		"Probability" is the likelihood to cause an incident, near miss, or accident and Identified as: Frequent, Likely, Occasional, Seldom, or Unlikely.					RAC Chart
		"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible					E= Extremely High Risk
		Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.					H= High Risk
		M= Moderate Risk					
		L = Low Risk					
ACTIVITY / PHASE	POTENTIAL HAZARDS	RECOMMENDED ACTIONS / CONTROLS					RAC
1. All vehicle operation conducted while performing duties with the project.	1. Vehicle Accident - <ul style="list-style-type: none"> • Unauthorized drivers • Vehicle/equipment failure • Distracted driving • Struck by motor vehicles • Speeding • Unsecured loads 	1. The following measures will be employed to minimize the potential for an accident <p>Before Driving</p> <ul style="list-style-type: none"> • Ensure driver is "authorized" per the Tetra Tech Vehicle Safety Program • Prior to use, walk around your vehicle make sure you have adequate tire pressure, no lights are broken, etc. Examine gauges to ensure operational fluids are at desired levels. • Preset radio stations, secure wires for auxiliary iPod or similar devices so this is not attempted while driving. • Attach hands free devices to cell phones, place devices where they are easily accessed. • Set address for GPS or similar devices so this does not have to occur while driving. <p>Driving</p> <ul style="list-style-type: none"> • Do not use cell phones, eat, play with the radio or engage in any activities that would distract you from your primary task of driving. Cell phone use while driving is only permitted when a hands-free device is used. If you receive a call, let it go to voice mail or pull over and answer it. 					L

ACTIVITY HAZARD ANALYSIS
Site Mobilization/Demobilization
Page 2 of 5

ACTIVITY / PHASE	POTENTIAL HAZARDS	RECOMMENDED ACTIONS / CONTROLS	RAC
		<ul style="list-style-type: none"> • Ensure you have an Orange Vest and a Reflective Triangle in your vehicle at all times, a disposable camera, Tetra Tech Incident Form (IR-C). • Practice defensive driving whenever traveling in a vehicle. Always permit adequate room between you and the driver in front of your vehicle. Use the 4-second rule. • Follow the direction of posted signs (speed limits, etc.). You will be responsible for all moving and parking violations. • Exercise extra caution when moving through school and work zones. • All items in and on your vehicle should be secured to prevent movement or loss from the vehicle potential causing an accident. <p>If you are in an accident</p> <ul style="list-style-type: none"> • Move you vehicle if possible from the travel lanes. • Turn on your emergency flashers. • Do not step into traffic when exiting your vehicle. • Place your warning triangle (100-feet behind your vehicle) and put on your Orange vest. • Contact the FOL and the SSO. • Be respectful to the Local authorities. • Do NOT attempt to argue whose fault. • Secure all valuables. Take the keys from the ignition if you leave your vehicle for any reason. (Be aware there will be a fee for towing, traffic citations, etc.). • Complete the IR-C form to make sure you have gathered all pertinent information 	
<p>2. Preparatory tasks, Assembling, packing, unpacking equipment and supplies.</p>	<p>1. Minor cuts, abrasions or contusions handling equipment and tools</p>	<p>Wear cut-resistant gloves when handling items with sharp or rough edges or when using knives to cut open packages.</p> <ul style="list-style-type: none"> • A cut resistant glove should at least be worn on the non-knife hand. • Exercise caution when unpacking boxes. Make sure you can see clearly into the box and do not reach in and contact broken glass (possibly damaged in shipment) or sharp articles. • Always cut away from yourself and others. • Do not place items to be cut on your hand and/or knee • Always use a sharp cutting instrument. Many accidents result from struggling with dull cutting implements. • Secure work pieces to be cut. • Carry and transport glassware in a hard sided container. That way if you fall, you will not fall on broken glass. 	<p>L</p>

ACTIVITY HAZARD ANALYSIS
Site Mobilization/Demobilization
Page 3 of 5

ACTIVITY / PHASE	POTENTIAL HAZARDS	RECOMMENDED ACTIONS / CONTROLS	RAC
		<ul style="list-style-type: none"> • If there is broken glass, place it in a hard sided container for disposal. Placement in a soft sided container may result in cuts and lacerations if the bag is penetrated by shards of glass. <p>See Section 4.13 of the HSGM for additional safe work practices as it pertains cuts/lacerations.</p>	
	<p>2. Strains or sprains during manual lifting and carrying activities</p>	<p>Practice safe lifting techniques (use mechanical lifting devices such as a dolly whenever possible), and plan each lift:</p> <ul style="list-style-type: none"> • Inspect/clear the intended path of travel and areas where loads will be deposited, • test lift each object to ensure you can without injuring yourself, • ensure good grasp is obtainable on object, • keep back straight and lift with legs not back, • obtain help when needed to lift large, bulky, or heavy items. • Stretch before physical taxing activities. In the later afternoon, your muscles, tendons, and ligaments maybe stressed from fatigue. Take breaks as necessary to avoid injury. <p>See Section 4.4 of the HSGM for additional safe lifting practices.</p>	L
<p>3. Receiving chemicals, storing chemicals, preparing to use chemicals, collecting Material Safety Data Sheets completing chemical Inventory;</p>	<p>1. Chemical Exposure</p> <p>Gathering, providing and maintaining hazard awareness information.</p>	<p>It is not anticipated that site personnel will encounter chemical hazards during mobilization as no direct encounter is planned. However, it will be the responsibility of the FOL and/or the SSO to implement the Onsite Hazard Communication Program (See Section 5.0 of the HSGM). In this effort all chemicals brought onsite (compressed gases (calibration gases), decontamination fluids; sample preservatives, well construction supplies, etc.) will</p> <ul style="list-style-type: none"> • All chemicals will have an accompanying Materials Safety Data Sheet (MSDS) that has been reviewed and approved for use by the SSO. <ul style="list-style-type: none"> - The SSO will review the HASP to ensure emergency equipment and/or associated PPE necessary to ensure the safety of the workers are equal or better than that listed in the MSDS. • All incoming containers will be properly labeled, will be in English and not defaced. If the materials will be transferred to temporary containers, these too will be appropriately labeled by the SSO or the person using the materials. • All materials received onsite will be added to the Chemical Inventory List. Included in this information is the volume and location stored and primary hazards. • All materials will be stored as prescribed with compatible chemicals. 	L

ACTIVITY HAZARD ANALYSIS
Site Mobilization/Demobilization
Page 4 of 5

ACTIVITY / PHASE	POTENTIAL HAZARDS	RECOMMENDED ACTIONS / CONTROLS	RAC
		<ul style="list-style-type: none"> As necessary employ spill prevention pans or like equipment to capture or contain spills within the storage area. 	
4. Initial site survey of the intended work areas	1. Steep embankments, sink holes; poisonous vegetation.	<p>All workers are to wear sturdy work shoes that are outfitted with slip resistant aggressive tread.</p> <p>All exits and selected access pathways will be maintained free of obstructions to allow free movement of site personnel, equipment, and if necessary emergency equipment.</p> <p>The Emergency Evacuation point will be selected as part of the initial site survey.</p>	
EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS	
Hand tools (dollies, two-wheeled hand carts, hand knives, carpenter tools, fixed and portable ladders, etc.)	<p>Visual inspection of hand and power tools will be performed by the SSO. Tools will be tagged with colored electrical tape. Green tape ok for use. Red tape do not use. All red taped items should be repaired or removed from the site.</p> <p>Each time a tool is used it will undergo a cursory inspection by the user. Noted damage (mushroomed head, splintered handle, etc.) will require removal from service.</p> <p>FOL and SSO to perform regular (e.g., daily) inspections for housekeeping issues. The results of these efforts will be documented in the Field Logbook</p>	<p>All personnel</p> <ul style="list-style-type: none"> 40-Hour General Site Worker Training [OSHA 29 CFR 1910.120 (e)] 8-Hour General Site Worker Refresher Training [OSHA 29 CFR 1910.120 (e)(8)] Site Specific Training – All personnel shall review this Abbreviated Health and Safety Plan prior to the commencement of on-site activity. Participate in a Medical Clearance/Surveillance Program as described in OSHA 29 CFR 1910.120 (f). Complete a Medical Data Sheet Review applicable MSDSs if you are unaware of the hazards and recommended control measures for diesel fuel and grout. <p>Supervisory personnel: 8-Hour General Site Worker Supervisory Training [OSHA 29 CFR 1910.120 (e)(4)]</p>	
<p>Personal Protective Equipment: <u>Minimum:</u> Safety toed work boots; hardhats, safety glasses, flame retardant protective clothing; work gloves. <u>Optional items:</u> High visibility vest, Hearing protection</p>	Initial PPE inspection performed by SSO. Ongoing (prior to each use) inspections responsibilities of PPE users.	<p>PPE training in proper use, care, storage, and limitations. It is anticipated that this has been covered in employees 40 hour HAZWOPER training, which is to be verified by the SSO through initial training documentation and review prior to permitting personnel to participate in site activities, and will be confirmed by visual observations of worker activities.</p> <p>The SSO will be responsible for the implementation of the following Site Specific Health and Safety Programs:</p> <ul style="list-style-type: none"> Hazard Communication 	



ACTIVITY HAZARD ANALYSIS (AHA)

Activity/Work Task: Groundwater Sampling		Overall Risk Assessment Code (Use highest code)			L		
Project Location: NAS Key West, Florida		Risk Assessment Code (RAC) Matrix					
Contract Task Order Number: CTO 155		Severity	Probability				
Date Prepared: April 2012			Frequent	Likely	Occasional	Seldom	Unlikely
Prepared by: J. Laffey		Catastrophic	E	E	H	H	M
		Critical	E	H	H	M	L
Reviewed by: J. Carothers, PhD		Marginal	H	M	M	L	L
		Negligible	M	L	L	L	L
Notes: (Field Notes, Review Comments, etc.)		Step 1: Review each "Hazard" with identified safety "Controls" and determine RAC (See above)					
		"Probability" is the likelihood to cause an incident, near miss, or accident and Identified as: Frequent, Likely, Occasional, Seldom, or Unlikely.				RAC Chart	
		"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible				E= Extremely High Risk	
		Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.				H= High Risk	
		M= Moderate Risk		L = Low Risk			
ACTIVITY / PHASE	POTENTIAL HAZARDS	RECOMMENDED ACTIONS / CONTROLS				RAC	
1. Groundwater measurements; well development, and groundwater sampling - Using a Peristaltic Pump, or dedicated bladder pump Site preparation and set up.	1. Biological hazards Terrain challenges; slip trip, and falls; struck by - Free space for travel	1. Initial site preparations were critical during the mobilization phase in the identification, barricading or removal of hazards that may exist and hence the protection of site personnel and resources. Personnel moving to their sample locations will repeat this process to ensure they are aware of hazards within their immediate work area <ul style="list-style-type: none"> • Perform a site walk over The hazards types include <ul style="list-style-type: none"> - Terrain challenges – Paths for vehicle and pedestrian movement will travel, fence physical barriers, etc. - If flush mount are used they will be of adequate strength to support personnel and vehicle movement • Once the site is set up provisions for adequate Emergency Access/Egress shall be maintained to allow emergency vehicles passage if required. 				L	
	2. Minor cuts, abrasions or contusions handling equipment and tools	2. Use hand tools that are in good condition. Hand tool users must be familiar with their proper use and must use them only in a manner that is consistent with their intended operation. As indicated earlier, the users will be responsible for inspecting tools prior to use. Additional measures include: <ul style="list-style-type: none"> • When cutting tubing cut away from yourself and not towards others • It is recommended that scissors be used to cut tubing versus knives. Where this is not possible, wear a leather glove on your non-knife hand. 				L	

ACTIVITY HAZARD ANALYSIS
Groundwater Sampling
Page 2 of 6

ACTIVITY / PHASE	POTENTIAL HAZARDS	RECOMMENDED ACTIONS / CONTROLS	RAC
		<ul style="list-style-type: none"> • Sample glassware should be transported in hard sided containers such as coolers, that way if you fall the likelihood of falling onto glassware causing lacerations and punctures are greatly minimized. • Do not throw broken glass directly into the trash. Place it into a hard sided container such as a cardboard box. That way when you are transporting the garbage bag to the waste receptacle it will not cut through the bag and potentially cause lacerations. • Do not arbitrarily reach into the trash to retrieve something. Dump it out onto a flat surface. This will minimize potential punctures if someone else has thrown sharp articles into the trash. 	
	3. Knee injuries	<p>Much of the sampling activities will require the sampler to get on to kneel to open wells, take groundwater level measurements, etc.</p> <ul style="list-style-type: none"> • Personnel should clear the pad of any debris • Personnel will wear hard sided knee pads. 	L
	4. Electrical hazards/ Entanglement	<p>Electrical hazards – This hazard exists only when connecting to vehicle batteries. It does not exist when using sealed batteries or the 12v power plug</p> <ul style="list-style-type: none"> • When possible use the 12V power connection such as the cigarette lighter or provided 12v power inlet. When this is not possible: • Shut the vehicle off to avoid entanglement in spinning blades and belts. Secure hoods, hood strings, jewelry or any other item that can become entangled. • Wearing leather gloves and safety glasses, at arm’s length, do not place your face over the battery; connect negative terminal first, then positive. 	L
	5. Lifting hazards	<p>Practice safe lifting techniques (use mechanical lifting devices such as a dolly whenever possible, ensure clear path of travel, good grasp on object, lift with legs not back, and obtain help when needed to lift large, bulky, or heavy items).</p> <ul style="list-style-type: none"> • Fill buckets and drums only to 80% which is manageable. • Place lids on during transport. • If you must carry articles to the sample locations a cart or wagon is recommended to transport. 	L
5. Sampling existing wells	1. Gases and vapor build up	<p>The potential for existing wells to build and accumulate gases and vapors exists.</p> <ul style="list-style-type: none"> • At arm’s length, open the well and remove the J-Plug and retreat. • During this time, the well may off gas, but it will also allow the water levels to reach equilibrium once pressure is removed. • Prepare your equipment. • Set up your sampling station from an upwind position. • The lid on the discharge bucket or drum should be placed loosely to allow the collection of the water but to contain any volatiles stripped during discharge. • Wear nitrile surgeon’s gloves during sample equipment deployment, sample 	L

ACTIVITY HAZARD ANALYSIS
Groundwater Sampling
Page 3 of 6

ACTIVITY / PHASE	POTENTIAL HAZARDS	RECOMMENDED ACTIONS / CONTROLS	RAC
		<p>collection, and removal as applicable.</p> <ul style="list-style-type: none"> • Use good work hygiene practices including <ul style="list-style-type: none"> - Minimizing hand to mouth contact during this sample collection period. - Flushing disposable tubing out and wiping down the exterior as it is extracted prior to disposal. • Sample collection buckets and flow through cells should be placed in a mortar tub or similar secondary containment to minimize incidental release during collection and transportation to the disposal area • Wrap or bag all contaminated pumps and tubing for transport. Decontaminate as soon as possible. DO NOT allow contaminated equipment or tubing to off gas in your vehicle. Keep the bag sealed and get it cleaned. 	
	<p>2. Chemical Contaminants – The primary COC is methyl chloride</p>	<p>The screening is for VOC's is detected using Direct Reading Instruments such as the PID with a lamp strength of 11.7eV. Given the nature of the contaminants exposure during these activities are considered negligible. However, precautionary monitoring will be conducted. The action levels established for these contaminants are as follows:</p> <ul style="list-style-type: none"> • Periodically screen sample with the PID. If readings are above daily-established background levels (BGLs) are noted in borehole/well monitor worker breathing zone (BZ) areas. If readings in worker BZ areas exceed: <ul style="list-style-type: none"> - PID action level: 55 ppm above background in breathing zone areas for 4 exposures of no more than 5 minutes per day. • Air monitoring will be conducted at the source (borehole or sample medium in the acetate liner) then in the breathing zone of the driller or sampler. • While collecting the groundwater sample <ul style="list-style-type: none"> - Position sampling equipment and yourself upwind. - Keep collection bucket, loosely covered during sampling. - Keep collection bucket covered while in vehicle to avoid the evolution of gases into the vehicle while parked. - Open the well at arm's length, then back away allow it to off gas and equilibrate. - Use mortar tubs as secondary containment to avoid incidental spills. • Air monitoring will be conducted after the well has off gassed in the breathing zone upwind of the sampler. • It is not anticipated that field personnel will be impacted by emissions associated with these contaminants. 	<p>L</p>
<p>6. Collecting the sample</p>	<p>1. Corrosives (acids and bases); toxic sample preservatives;</p>	<p>Hydrochloric acid is used as a sample preservative for volatile organic compound groundwater samples. Others that maybe encountered include</p> <ul style="list-style-type: none"> • Nitric acid – metals • Sodium hydroxide • Cyanide 	<p>L</p>

ACTIVITY HAZARD ANALYSIS
Groundwater Sampling
Page 4 of 6

ACTIVITY / PHASE	POTENTIAL HAZARDS	RECOMMENDED ACTIONS / CONTROLS	RAC
		<p>These substances are used to minimize microbial degradation while not impacting the sample quality. The problem with these substances is that they are corrosive and will degrade steel and human tissue or are toxic. These substances are presented in very small concentration. By following the guidelines provided in the Mobilization/demobilization AHA including</p> <ul style="list-style-type: none"> • Completing the onsite Hazard Communication Program – Know the hazards and how to prevent them. Review the MSDS; • Provide for the emergency (flushing) even if it is using drinking water to flush a contact point; • Wear proper PPE – When opening sample bottles wear nitrile surgeons gloves and safety glasses • Store containers in the upright position. • Hold over your secondary containment when opening. • Do not place your face over the bottles during collection as they may off gas or reactive with contaminants in the water. <p>It is the intent that through the use of the small 1-liter eyewash solutions, to offer immediate aid during removal and transport to the medical provider. Bottled drinking water may also be used in an emergency when additional solution is needed until medical support is achieved. The eyewash units onsite will be</p> <ul style="list-style-type: none"> • Immediately accessible during sampling. • Inspected once/week • Replaced when expired • Maintain these solutions accessible but out of direct sunlight – No one wants to flush their eyes with hot or cold solutions. 	
7. Closing up the well after sampling	1. Security risks; slip trip, and fall hazards; cross contamination	<p>7. Many of the measure have been discussed concerning minimizing potential chemical contaminant contact including</p> <ul style="list-style-type: none"> • Using mortar tubs as secondary containment • Sealing buckets during storage and transport in your vehicle. • Minimizing the amount in the bucket to 80% to control potential lifting hazards. • <p>To secure access to groundwater water</p> <ul style="list-style-type: none"> • J-Plugs will be installed and adequately tightened. If it does not function, replace it. • Use a pad lock to secure the protective casing (stick ups) or the J-plug for flush mounts. • Bolts along with neoprene seals will be replaced and the flush mount cap tightened to provide an adequate seal, yet not over tighten. • All items that were in the well that will be removed such as the groundwater level indicator will be wiped down with a towel and deionized water during 	L

ACTIVITY HAZARD ANALYSIS
Groundwater Sampling
Page 5 of 6

ACTIVITY / PHASE	POTENTIAL HAZARDS	RECOMMENDED ACTIONS / CONTROLS	RAC
		extraction. Between the wells to be sampled, the tape segment exposed to the groundwater will be subjected to a soap and water wash and rinse, prior to moving to the next well. <ul style="list-style-type: none"> All wells will be sufficiently secured to ensure no outside tampering occurs. 	
EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS	
Peristaltic pumps; dedicated or disposable tubing Groundwater quality measurement devices; groundwater measurement devices; turbidity meter; buckets with lids including temporary labels; Teflon or Teflon lined tubing; surgical grade silicone tubing.	Electrical connections, wiring, tubing connections; pressurized connections; compressed gas cylinder safety awareness, PID	The FOL will direct personnel on the procedure to be employed to collect groundwater samples. General operating/demonstrated skill of the sampling technician per the SOP for groundwater sampling and/or well development should be assessed by the FOL. Instruction should be provided as necessary.	
<p>Personal Protective Equipment: Minimum: Safety Glasses; steel toed/shank footwear; leather/canvas work gloves for site set up.</p> <p>Nitrile surgeons or nitrile outer gloves will be utilized when handling clean and contaminated tubing or sampling equipment.</p> <p>Optional items: Hard hats, High visibility vests are recommended for these activities in high traffic areas.</p> <p>HTRW: methyl chloride</p>	None required	<p>All personnel</p> <ul style="list-style-type: none"> 40-Hour General Site Worker Training [OSHA 29 CFR 1910.120 (e)] 8-Hour General Site Worker Refresher Training [OSHA 29 CFR 1910.120 (e)(8)] Site Specific Training – All personnel shall be instructed and attest to the review and understanding of this HASP prior to the commencement of on-site activity. Periodically, Tailgate Training Sessions will be conducted to review activities in progress, results of site surveys, and upcoming tasks. It is recommended that AHAs be reviewed prior to conducting the identified task, as well as, updating this AHA to include site-specific information. Review applicable MSDSs if you are unaware of the hazards and recommended control measures for sample preservatives. <p>Supervisory personnel: 8-Hour General Site Worker Supervisory Training [OSHA 29 CFR 1910.120 (e)(4)]</p>	

ACTIVITY HAZARD ANALYSIS
Groundwater Sampling
Page 6 of 6

I have read and understand this AHA:

Name (Printed)	Signature	Occupation	Date Reviewed/Training



ACTIVITY HAZARD ANALYSIS (AHA)

Activity/Work Task: Decontamination		Overall Risk Assessment Code (RAC) (Use highest code)			L		
Project Location: NAS Key West, Florida		Risk Assessment Code (RAC) Matrix					
Contract Task Order Number: 155		Severity	Probability				
Date Prepared: April 2012			Frequent	Likely	Occasional	Seldom	Unlikely
Prepared by: J. Laffey		Catastrophic	E	E	H	H	M
Reviewed by: J. Carothers, PhD		Critical	E	H	H	M	L
		Marginal	H	M	M	L	L
Notes: (Field Notes, Review Comments, etc.)		Negligible	M	L	L	L	L
		Step 1: Review each "Hazard" with identified safety "Controls" and determine RAC (See above)					RAC Chart
		"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom, or Unlikely.				E= Extremely High Risk	
		"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible				H= High Risk	
		Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.				M= Moderate Risk	
						L = Low Risk	
JOB STEPS	HAZARDS	CONTROLS				RAC	
Personal Decontamination <ul style="list-style-type: none"> • Equipment drop • Segregated removal of PPE (wash and rinse reusable items, dispose of non-reusable items) 	1. Slips, Trips, Falls	1. Clear intended decon area location of ground hazards. 2. Practice good housekeeping to keep the site clear of obstructions, materials, equipment and other tripping hazards. 3. Wear appropriate foot protection to prevent slips and trips. 4. Use caution when working on uneven and wet surfaces				L	
	2. Exposure to contaminated media	1. Follow good decontamination practices (work from top down and outside in). 2. Nitrile gloves are to be the last item of PPE removed. 3. Wash hands and face following personal decontamination and prior to performing any hand-to-mouth activity.				L	
EQUIPMENT		INSPECTION		TRAINING			
Hand tools (hand brushes, garden sprayers, etc.)		Visual inspection prior to use by user. Check wooden handles for cracks or splinters.		None required.			
Personal Protective Equipment: Minimum: Safety toe boots, safety		Initial PPE inspection performed by SSO. Ongoing (prior to each use)		Initial site specific H&S training to cover review of the APP and SSHP. Daily tail-gate and pre-task briefings to review			

ACTIVITY HAZARD ANALYSIS

Decontamination

EQUIPMENT	INSPECTION	TRAINING
<p>glasses <u>Optional items:</u> Hardhat, hearing protection. Decontamination pad pressure washer operators are to wear full face shield over safety glasses with side shields and brow protection, hearing protection, and nitrile gloves. If contact with overspray cannot be avoided, rain suit or moisture-repellant disposable coveralls may be specified by the SSO. <u>HTRW:</u> methyl chloride</p>	<p>inspections responsibilities of PPE users.</p>	<p>appropriate AHAs and other relevant topics. OSHA 40 hour HAZWOPER training, plus appropriate 8-hour annual refresher training for the task participants. Supervisors must have completed additional 8 hours of HAZWOPER training. Also Review of AHA during tailgate safety briefing with the intended task participants.</p> <p>PPE training in proper use, care, storage, and limitations. It is anticipated that this has been covered in employees' 40 hour HAZWOPER training, which is to be verified by the SSO through initial training documentation and review prior to permitting personnel to participate in site activities, and will be confirmed by visual observations of worker activities.</p>

I have read and understand this AHA:

Name (Printed)	Signature	Date



ACTIVITY HAZARD ANALYSIS (AHA)

Activity/Work Task: IDW Management		Overall Risk Assessment Code (RAC) (Use highest code)			M		
Project Location: NAS Key West, Florida		Risk Assessment Code (RAC) Matrix					
Contract Task Order Number: 155		Severity	Probability				
Date Prepared: April 2012			Frequent	Likely	Occasional	Seldom	Unlikely
Prepared by: J. Laffey		Catastrophic	E	E	H	H	M
Reviewed by: J. Carothers, PhD		Critical	E	H	H	M	L
		Marginal	H	M	M	L	L
Notes: (Field Notes, Review Comments, etc.)		Negligible	M	L	L	L	L
		Step 1: Review each "Hazard" with identified safety "Controls" and determine RAC (See above) "Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom, or Unlikely. "Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.					RAC Chart E= Extremely High Risk H= High Risk M= Moderate Risk L = Low Risk
ACTIVITY / PHASE	POTENTIAL HAZARDS	RECOMMENDED ACTIONS / CONTROLS					RAC
1. Storage Area set up	1. Traffic hazards; material handling hazards	1. Traffic hazards/Material Handling hazards – This area should be easily accessible in order to place and remove the drums accumulated. To further reduce material handling hazards, support spill containment and control, and sampling when necessary, the IDW storage area should be structured as follows: <ul style="list-style-type: none"> • Maximum 4-drums to a pallet with retaining ring bolt and label on the outside for easy access/reference. • Maintain a minimum of 4-feet between each row of pallets. This is the minimum distance necessary to wheel drums on a drum dolly. • If the site is not secured, the satellite storage area shall be fenced and signs placed indicating the following: <ul style="list-style-type: none"> - Primary Point of Contact (make sure they know they been identified as the primary point of contact). - Phone Number - Emergency Contact (If different from the primary) • Provide a Drum/Container Inventory to the Primary Point of Contact and to Emergency Services, if they deem it necessary. The inventory should contain: <ul style="list-style-type: none"> - Each drum shall be assigned a unique identification number. This number shall be placed on the label and drum shell using a paint marker (Note: Do not paint the number on the lid as these have a tendency to get exchanged from time to time.) 					L

ACTIVITY HAZARD ANALYSIS

IDW Management

ACTIVITY / PHASE	POTENTIAL HAZARDS	RECOMMENDED ACTIONS / CONTROLS	RAC
		<ul style="list-style-type: none"> - Types of waste materials (decontamination waters; purge waters, etc.) - Volumes (Full or level associated with the container after completion of the project location) - Where it was derived from (The site and/or wells) - Dates (When filling began) - Contact – For more information • Ensure all lids are secured. • These materials shall be segregated from normal operations conducted during the week. • Signs, and if necessary, construction fencing may be used to provide isolation. 	
2. Material Handling	1. Lifting (strain/muscle pulls)	<p>Use mechanical means (i.e. dollies, etc.) to move and handle containers.</p> <ul style="list-style-type: none"> • Use proper lifting techniques described in Section 4.4 of the (HSGM). • Fill drums and buckets only to 80% to minimize some of the weight and incidental spill issues. • Use help to move and place drums <p>Reminder: The drums you are attempting to move, lift and/or relocate may weigh on the average of</p> <ul style="list-style-type: none"> • 55-Gallon container of purge or decontamination waters = ~500 lbs. (including the container) • 55-Gallon soil cuttings (from boring converted to wells) can weigh upwards of 700 pounds. 	M
3. Placing the drums	1. Pinches and compressions	<p>During placement of drums/containers on pallets use machinery or assistance from another person where possible. Keeps hand out of the area between drums during placement.</p> <ul style="list-style-type: none"> • It is best to place the drums and pallets then transport buckets to fill the drums already placed. • Wear steel toed shoes with adequate lug to support traction when moving heavy containers. • If drums are used at the wells, Whale pumps may be used to transfer contents to a drum in the pickup and then again at the storage area. • If necessary buckets can also be used to transfer materials. 	M
4. Spill prevention and protection • Staging and Labeling Containers.	1. Chemical contaminants exposure	<p>Generally encountering contaminants during this activity is low unless the contents of a container must be transferred due to a faulty container [leak(s)].</p> <ul style="list-style-type: none"> • The outside of containers should be cleaned of residual waters (e.g. splashes, etc.) to avoid potentially exposing all who come in contact. • The FOL and/or the SSO will ensure the outsides of all drums moved to the staging area are washed/wiped clean. 	L
EQUIPMENT TO BE USED		INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Hand tools, dollies, two wheeled carts.		When decontaminating equipment check equipment for deficiencies report to the SSO.	All personnel participating in this activity must be current with HAZWOPER training requirements as specified in Mobilization/Demobilization.
Personal Protective Equipment: <u>Minimum:</u> <ul style="list-style-type: none"> • Nitrile gloves. • Leather gloves 		Initial PPE inspection performed by SSO. Ongoing (prior to each use) inspections responsibilities of PPE users.	PPE training in proper use, care, storage, and limitations. It is anticipated that this has been covered in employees 40 hour HAZWOPER training, which is to be verified by the SSO through initial training documentation and review prior to permitting personnel to participate in site activities, and will be confirmed by

ATTACHMENT IV
OSHA POSTER

Job Safety and Health

It's the law!



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

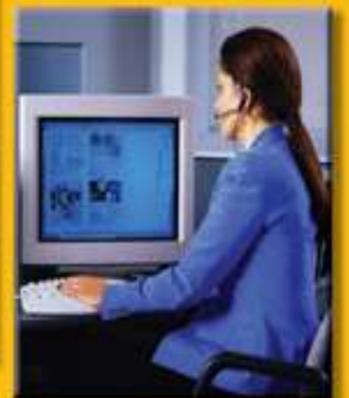
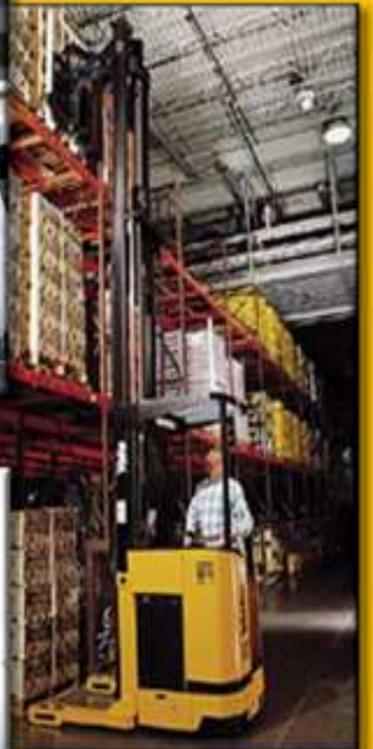
EMPLOYEES:

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

EMPLOYERS:

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

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



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

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

