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NAS JACKSONVILLE
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HEALTH AND SAFETY PLAN FOR MONITORED NATURAL ATTENUATION SAMPLING
HANGAR 1000 WITH TRANSMITTAL NAS JACKSONVILLE FL
10/13/2011
TETRA TECH



TETRA TECH

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Project Number 112G02098

Ms. Adrienne Wilson
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Code OPDE3/AW
Department of the Navy
Naval Facilities Southeast
ATTN: Ajax Street, Building 135N
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Reference: CLEAN IV Contract Number N62470-08-D-1001
Contract Task Order Number 0152

Subject: Health and Safety Plan for Monitored Natural Attenuation Sampling at
Hangar 1000, Naval Air Station Jacksonville, Florida

Dear Ms. Wilson:

Tetra Tech NUS, Inc. (Tetra Tech) is pleased to present the Health and Safety Plan for Monitored Natural Attenuation Sampling at Hangar 1000, Naval Air Station Jacksonville, Florida for your review. A copy of this document has also been forwarded to the NAS Jacksonville Partnering Team members listed below.

If you have any questions regarding the enclosed material, or if I can be of assistance in any way, please contact me at (904) 730-4669, extension 213, or by e-mail at Mark.Peterson@tetrattech.com.

Sincerely,

Mark A. Peterson
Task Order Manager

Enclosure

c: Tim Curtin, NAS Jacksonville
Pete Dao, USEPA
David Grabka, FDEP
CTO 0152 Project File

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Comprehensive Long-term Environmental Action Navy

CONTRACT NUMBER N62470-08-D-1001



Rev. 0
October 2011

Health and Safety Plan for Monitored Natural Attenuation Sampling at Hangar 1000

Naval Air Station Jacksonville
Jacksonville, Florida

Contract Task Order JM66

October 2011



NAS Jacksonville
Jacksonville, Florida 32212-0030

HEALTH AND SAFETY PLAN
FOR
MONITORED NATURAL ATTENUATION (MNA) SAMPLING
AT
HANGAR 1000

NAVAL AIR STATION JACKSONVILLE
JACKSONVILLE, FLORIDA

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

Submitted to:
Naval Facilities Engineering Command Southeast
NAS Jacksonville
Jacksonville, Florida 32212-0030

Submitted by:
Tetra Tech NUS, Inc.
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CONTRACT NO. N62470-08-D-1001
CONTRACT TASK ORDER JM66

OCTOBER 2011

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1.0 INTRODUCTION

The objective of this Health and Safety Plan (HASP) is to provide the safety and health requirements, restrictions, practices, and procedures for Tetra Tech NUS, Inc. (Tetra Tech) personnel participating in the Monitored Natural Attenuation (MNA) Sampling at Hangar 1000 at the Naval Air Station (NAS) Jacksonville, Florida. The objectives of this sampling are to monitor groundwater for contaminants and MNA parameters, and surface water to ensure that contaminants are not discharging into the drainage ditch or storm sewer.

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

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

1.1 AUTHORITY

This work is authorized under the Comprehensive Long-Term Environmental Action Navy (CLEAN) contract, administered through the Naval Facilities Engineering Command Southeast, as defined under Contract No. N62470-08-D-1001 Contract Task Order (CTO) JM66.

1.2 KEY PROJECT PERSONNEL AND ORGANIZATION

This section defines responsibilities for site safety and health for Tetra Tech employees conducting the hand augering, sampling, and other supporting field activities under this field effort. Personnel assigned to participate in the field work have the primary responsibility for performing their work tasks in a manner that

is consistent with the Tetra Tech Health and Safety Policy, the health and safety training that they have received, the contents of this HASP, and in an overall manner that protects their personal safety and health and that of their co-workers. The following persons are the primary point of contact and have the primary responsibility for observing and implementing this HASP and for overall on-site health and safety.

- The Tetra Tech PM is responsible for the overall direction and implementation of health and safety for this work.
- The 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 on-site personnel.
- The Tetra Tech SSO or his/her representative supports the FOL concerning the aspects of health and safety including, but not limited to:
 - Coordinating health and safety activities.
 - Selecting, applying, inspecting, and maintaining personal protective equipment (PPE).
 - 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 STOP WORK AUTHORIZATION

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

and communication, all parties involved shall then develop, communicate, and implement corrective actions necessary and appropriate to modify the task and to resume work.

1.4 SITE INFORMATION AND PERSONNEL ASSIGNMENTS

Site Name: Hangar 1000 **Address:** Jacksonville, Florida

NAVFAC SE Engineer in Charge: Adrienne Wilson **Phone Number:** (904) 542-6160

Site Contact: Tim Curtin **Phone Number:** (904) 542-4228

Purpose of Site Visit: MNA sampling

Proposed Start-up Date: October 2011 until completion

Project Team:

Tetra Tech Personnel:

Mark Peterson

Donald Hardison

Matthew M. Soltis, CIH, CSP

James K. Laffey

Discipline/Tasks Assigned:

PM

FOL/SSO

HSM

PHSO

Hazard Assessment (for purposes of 29 CFR 1010.132) for HASP preparation has been conducted by:
James K. Laffey

2.0 EMERGENCY ACTION PLAN

2.1 INTRODUCTION

This section has been developed as part of a planning effort to direct and guide field personnel in the event of an emergency. In the event of an emergency, the field team will primarily evacuate and assemble to an area unaffected by the emergency and notify the appropriate local emergency response personnel/agencies. Workers who are ill or who have suffered a non-serious injury may be transported by site personnel to nearby medical facilities, provided that such transport does not aggravate or further endanger the welfare of the injured or ill person. The emergency response agencies listed in this plan are capable of providing the most effective response, and as such, will be designated as the primary responders. These agencies are located within a reasonable distance from the area of site operations, which ensures adequate emergency response time. The Navy Remedial Project Manager will be notified if outside response agencies are contacted.

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

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

2.2 EMERGENCY PLANNING

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

- Coordinating with the base fire protection and emergency services prior to commencement of work to ensure that Tetra Tech emergency action activities are compatible with existing 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 on site), with Material Safety Data Sheets (MSDS).
 - On-site personnel medical records (Medical Data Sheets).
 - A log book identifying personnel on site each day.
 - Hospital route maps with directions (these should also be placed in each site vehicle).
 - Emergency Notification - phone numbers.

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

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

2.3 EMERGENCY RECOGNITION AND PREVENTION

2.3.1 Recognition

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

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

2.3.2 Prevention

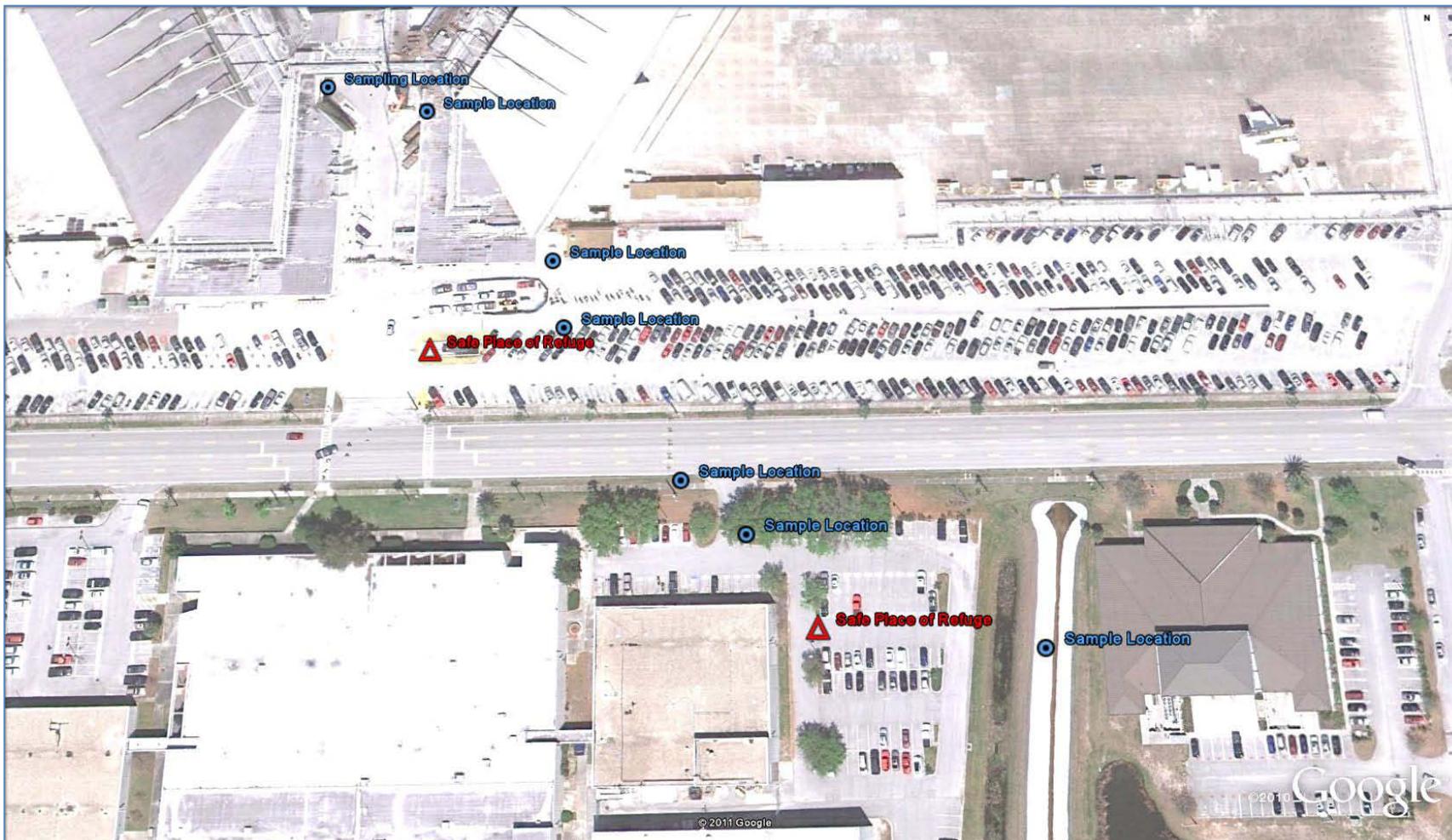
Tetra Tech and subcontractor personnel will minimize the potential for emergencies by following the HSGM and ensuring compliance with the HASP and applicable OSHA regulations. Daily site surveys of work areas by the FOL and/or the SSO, prior to the commencement of that day's activities, will also assist 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 that 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. The work (sample) locations and safe places of refuge are identified in Figure 2-1.

FIGURE 2-1
WORK (SAMPLE) LOCATIONS AND
SAFE PLACES OF REFUGE



If these sites must be changed then the FOL or the SSO will notify site personnel prior to the commencement of site activities in the pre-activities training session. This information will also be repeated 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 on site (on a daily basis) in the site Health and Safety Logbook. This information will be utilized to perform the head count in the event of an emergency.

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

2.5 EMERGENCY CONTACTS

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

As soon as possible, Navy contact, Tim Curtin, 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 on site (see Attachment I).

**TABLE 2-1
EMERGENCY CONTACTS
NAS JACKSONVILLE, FLORIDA**

CONTACT	PHONE NUMBER
EMERGENCY Station 911* (Police, Fire, and Ambulance Services)	911
Jacksonville Sheriff's office (non-emergency)	(904) 630-0500
Florida Highway Patrol	(904) 695-4115
Jacksonville Fire & Rescue (non-emergency)	(904) 630-2472
Orange Park Medical Center (primary hospital)	(904) 276-8580
NAS Jacksonville Naval Hospital (for life threatening emergencies only)	(904) 542-4530
Chemtrec	(800) 424-9300
National Response Center	(800) 424-8802
Florida Poison Control Center	(800) 222-1222
Sunshine State One Call of Florida – Utility Clearance	811
NAVFAC SE Engineer In Charge - Adrienne Wilson	(904) 542-6160
Navy On-Site Representative - Tim Curtin	(904) 542-4228
FOL/SSO – Donald Hardison	(904) 730-4669-office (904) 466-5957-cell
Field Technician – Zack Scribner	(904) 730-4669-office (217) 556-5078-cell
PHSO – James K. Laffey	(412) 921-8678-office (412) 370-6668-cell
PM – Mark Peterson	(904) 730-4669 Ext 216
HSM - Matthew M. Soltis, CIH, CSP	(412) 921-8912

* State that the incident is at NAS Jacksonville or for transfer to NAS Jacksonville Fire/Rescue.

2.6 EMERGENCY ROUTE TO HOSPITAL

Life-threatening medical emergencies will be handled by the NAS Jacksonville Naval Hospital. Others will be referred to the Orange Park Medical Center. Maps to these two facilities are provided in Figure 2-2.

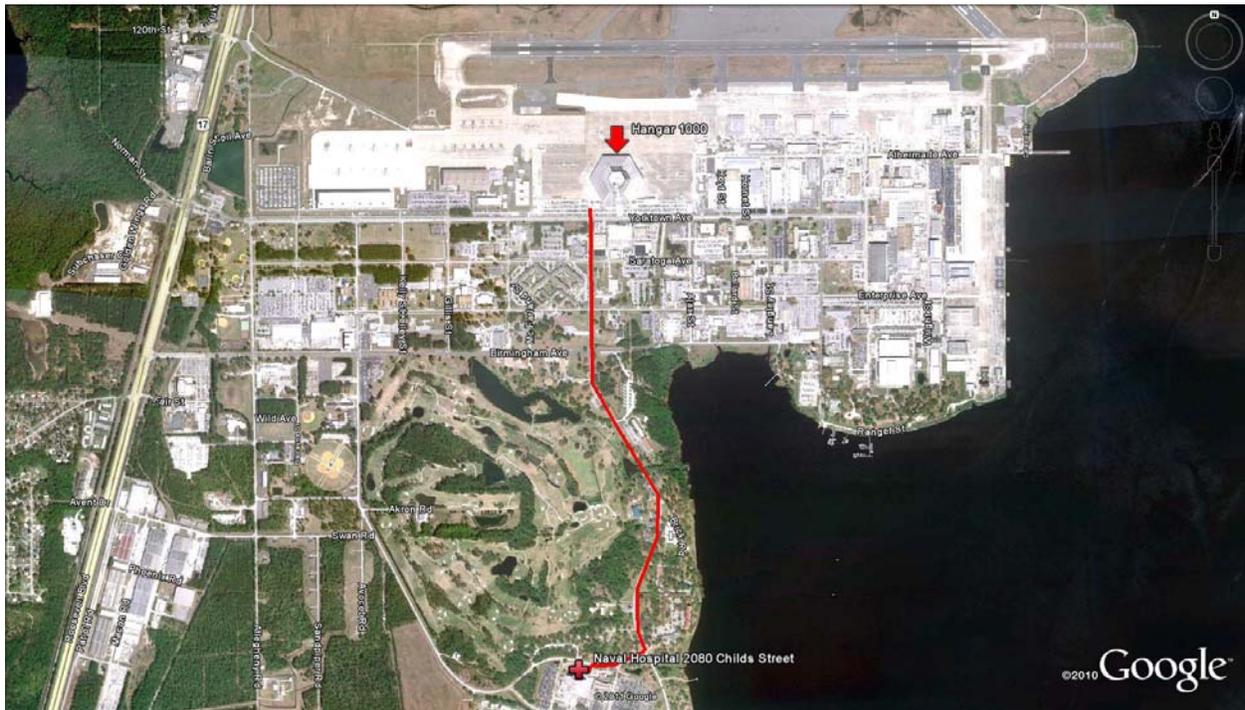
FIGURE 2-2
DIRECTIONS AND MAPS TO HOSPITALS

Directions to NAS Jacksonville Hospital

2080 Child Street
Jacksonville, Florida

- Take Mustin Street South 1.2 miles
- Turn right on Childs Street 0.1 mile

The Naval Hospital Jacksonville is an eight-story building on the left.



Directions to Orange Park Medical Center

2001 Kingsley Avenue
Orange Park, Florida

Distance 7.4 miles

- West on Yorktown
- Proceed through the guard gates off the base
- Left onto US-17 South Roosevelt Blvd
- Right onto Kingsley Ave
- Right onto Professional Center Drive

1.1 miles
Short distance
4.2 miles
2.1 miles



2.7 EMERGENCY ALERTING AND ACTION/RESPONSE PROCEDURES

Tetra Tech personnel will be working in close proximity to each other at NAS Jacksonville and other work sites associated with the installation of wells and sampling 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 site personnel.
- Once non-essential personnel are evacuated, appropriate response procedures will be enacted to control the situation.
- Describe to the FOL (who 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.

2.8 PPE AND EMERGENCY EQUIPMENT

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

2.9 DECONTAMINATION PROCEDURES / EMERGENCY MEDICAL TREATMENT

During any site evacuation, decontamination procedures will be performed only if doing so does not further jeopardize the welfare of site workers. Decontamination will be postponed if the incident warrants immediate evacuation and will be completed at the soon as physically possible. 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 for emergency situations and may provide initial medical support for injury/illnesses requiring only "Basic First-Aid" level support, and only within the limits of training obtained by site personnel. At least two people will be trained in First-Aid will be on site during task operations. Basic First-Aid is considered treatment that can be rendered by a trained first aid provider at the injury location and not requiring follow-up treatment or examination by a physician (for example; minor cuts, bruises, stings, scrapes, and burns). Not included as Basic First-Aid are second or third degree burns, cuts, lacerations requiring stitches or butterfly bandaging, heat exhaustion, severe poisonous plant or insect bite reactions. 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.

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 on site. If an exposure to hazardous materials has occurred, provide information on the chemical, physical, and toxicological properties of the subject chemical(s) to medical service personnel.

2.10 INJURY/ILLNESS REPORTING

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

2.10.1 TOTAL Incident Reporting System

TOTAL is Tetra Tech's new online incident reporting system. 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.

TOTAL looks like the incident reporting form in Attachment II. TOTAL is an intuitive system that will guide you through the necessary steps to report an incident within 24 hours of its occurrence. Behind the scenes, TOTAL is a tool for H&S professionals to 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.

2.11 DRILL/INCIDENT AFTER ACTION CRITIQUE

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

3.0 SITE BACKGROUND

3.1 SITE DESCRIPTION

NAS Jacksonville occupies approximately 3,900 acres on the western bank of the St. Johns River in southeastern Duval County, Florida. The station is approximately 13 miles south of downtown Jacksonville. NAS Jacksonville was commissioned in 1940 to provide facilities for pilot training and a Navy Aviation Trades School for ground crew members. Its physical size more than doubled in support of World War II military operations. Since 1951, the facility has served the dual purpose of training pilots and ground crew members and supporting operational carrier squadrons. In November 1989, NAS Jacksonville was added to the National Priorities List.

Hangar 1000 is located immediately south of the flight line (John Towers Field) at NAS Jacksonville on the northern side of Yorktown Avenue, slightly more than 1 mile east of the Yorktown Gate off of Roosevelt Boulevard. Hangar 1000 is part of a complex that services large aircraft at NAS Jacksonville. The site is flat and the hangar is surrounded on the east, north, and west by a concrete apron/taxiway (tarmac) and on the south by an asphalt parking area for automobiles. An entrance keyway is on the southern side of the hangar facing the parking area and Yorktown Avenue.

Stormwater in the vicinity of Hangar 1000 is primarily diverted to an underground storm sewer conduit on the southern side of Yorktown Avenue. There are no permanent surface water bodies of significant dimension in the vicinity of Hangar 1000, although a drainage ditch which ultimately discharges into the St. Johns River is present downgradient (southeast) of the site.

3.2 SITE HISTORY

The Hangar 1000 regulated unit consisted of two former underground storage tanks (USTs), Tank A and Tank B, which were operated from the late 1960s until they were closed in 1994. These tanks were located on the eastern and northeastern sides of the keyway. Tank A was a 750-gallon capacity concrete tank used as an oil-water separator. Tank B was a 2000-gallon capacity steel UST, which received oil overflow from Tank A and waste oils and solvents discharged from wash racks and floor drains located inside the Hangar's maintenance facilities. The tanks were interconnected with 2-, 4-, and 6-inch diameter metal piping.

4.0 SCOPE OF WORK

This section of the HASP addresses proposed site activities that are to be conducted while performing these investigations and associated tasks. The specific tasks anticipated to be involved with this effort include the following:

- Mobilization/demobilization
- Multimedia sampling
 - Groundwater
 - Surface water (if water is present at the time of the groundwater sampling event)
- Decontamination
 - Personnel
 - Sampling equipment
- Investigation derived waste (IDW) Management
- GPS survey

No other activities are anticipated to be necessary. If it becomes apparent that additional or modified tasks must be performed beyond those listed above, the work is not to proceed until the FOL or SSO notifies the PM and the HSM, so that any appropriate modifications to this HASP can first be developed and communicated to the intended task participants.

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

The purpose of this section is to identify the anticipated hazards and appropriate hazard prevention/hazard control measures that are to be observed for each planned task or operation. These topics have been summarized for each planned task through the use of task-specific Activity Hazard Analysis, 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 this section.

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

5.1 GENERAL SAFE WORK PRACTICES

In addition to the task-specific work practices and restrictions identified in the Activity Hazard Analysis provided as Attachment III 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 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 reference information regarding the chemical and physical hazards which may be associated with activities that are to be conducted as part of the scope of work.

6.1 CHEMICAL HAZARDS

General contaminants of concern expected to be associated with these sites include the volatile organic compounds 1,1-dichloroethane, 1,1-dichloroethene, 1,2-dichloroethene, naphthalene, toluene, 1,1,1-trichloroethane, trichloroethane, and xylenes. It is recommended that exposure (via inhalation, ingestion, or skin contact) to these contaminants be minimized through the use of PPE and good work hygiene practices.

Table 6-1 shows the Chemicals of Potential Concern (COPCs) in comparison to current Occupational Exposure Limits (OELs) from the OSHA Personal Exposure Limits (OSHA PEL) and the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values. The COPCs highlighted in bold have values that are above the worst case scenario air concentration.

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

Contaminant of Concern	Highest Concentration in Water (µg/l)	Worst Case Scenario Air Concentration Possible (ppm)	Current OEL (ppm)
1,1-Dichloroethane	482	27.37	TWA ₈ : 100
1,1-Dichloroethene	126	33.92	TWA₈: 5
1,2-Dichloroethene	3900	164.14	TWA ₈ : 200
Napthalene	170	0.71	TWA ₈ : 10 STEL: 15
Toluene	44	3.17	TWA ₈ : 20
1,1,1-Trichloroethane	353	45.51	TWA ₈ : 350 STEL: 450
Trichloroethylene	380	28.49	TWA₈: 10 STEL: 25
Xylenes	25	1.57	TWA ₈ : 100 STEL: 150

Table Notes:

TWA₈: Time-weighted average exposure concentration for a conventional 8-hour work period that is not to be exceeded.

µg/l: micrograms per liter

STEL: Short Term Exposure Limit is an exposure above the TWA up to the STEL should not be longer than 15 minutes and should not occur more than four times per day.

Information for these substances is summarized below.

6.1.1 Volatile Organic Compounds (VOCs)

The majority of VOCs are often related to chlorinated solvents and associated degradation products, paint thinners, dry cleaning solvents, constituents of petroleum fuels (e.g. gasoline and natural gas), and crude oil tanking. Symptoms of acute exposure to VOCs can include abdominal pain, irritation of the skin, eyes, nose, and throat, dizziness, tremors, vomiting, GI bleeding, enlarged liver, pallor of the extremities, and frostbite like-symptoms.

Short-term exposure to VOCs can cause irritation of the nose and throat and central nervous system (CNS) depression, with symptoms such as drowsiness, dizziness, giddiness, headache, loss of coordination. High concentrations have caused numbness and facial pain, reduced eyesight, unconsciousness, irregular heartbeat and death. Very high concentrations have produced death due to CNS effects, and, in rare cases, irregular heart beat. Permanent nervous system damage and/or liver injury have resulted from severe overexposure.

1,1-Dichloroethene: The main effect from breathing high levels of 1,1-dichloroethene is on the central nervous system. Some people lost their breath and fainted after breathing high levels of the chemical. Breathing lower levels of 1,1-dichloroethene in air for a long time may damage your nervous system, liver, and lungs. Workers exposed to 1,1-dichloroethene have reported a loss in liver function, but other chemicals were present. Animals that breathed high levels of 1,1-dichloroethene had damaged livers, kidneys, and lungs. The offspring of some of the animals had a higher number of birth defects. We do not know if birth defects occur when people are exposed to 1,1-dichloroethene. Animals that ingested high levels of 1,1-dichloroethene had damaged livers, kidneys, and lungs. There were no birth defects in animals that ingested the chemical. Spilling 1,1-dichloroethene on your skin or in your eyes can cause irritation.

Trichloroethylene: Breathing small amounts may cause headaches, lung irritation, dizziness, poor coordination, and difficulty concentrating. Breathing large amounts of trichloroethylene may cause impaired heart function, unconsciousness, and death. Breathing it for long periods may cause nerve, kidney, and liver damage. Drinking large amounts of trichloroethylene may cause nausea, liver damage, unconsciousness, impaired heart function, or death. Drinking small amounts of trichloroethylene for long periods may cause liver and kidney damage, impaired immune system function, and impaired fetal development in pregnant women, although the extent of some of these effects is not yet clear. Skin contact with trichloroethylene for short periods may cause skin rashes.

6.1.2 Potential Routes of Exposure

Inhalation: It is important to keep in mind that the planned work area is outdoors, with ample natural ventilation that will reduce any airborne particulates through dilution and dispersion and the work being conducted is non-intrusive.

As a result of this, although possible, it is very unlikely that workers participating in these activities will encounter any airborne concentrations of the above COPCs that would represent an occupational exposure concern. Examples of onsite practices that are to be observed that will protect workers from exposure via inhalation include wearing the proper PPE and practicing good hygiene.

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

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

6.2 **PHYSICAL HAZARDS**

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

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

These hazards are discussed further below, and are presented relative to each task in the task-specific Activity Hazard Analysis.

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 (e.g., 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, Sprains, and 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 HSGM, 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, incoordination, 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 HSGM.

6.2.4 Vehicular Traffic

Hazards associated with vehicular traffic are likely to exist during site activities in and around Hangar 1000 and whenever site personnel perform work on or near the adjacent roadways. Additionally, site personnel will be instructed to maintain awareness of traffic and moving equipment when performing site activities. When working, site personnel will wear high visibility clothing.

6.2.5 Water Hazards

Planned activities may involve a location that is near a body of water. If sufficient water is flowing in the drainage ditch, the field team shall employ lifelines (tie-off procedure), safety harnesses, when within 4 feet of the waters edge. A personal floatation device (at least a United States Coast Guard Type III) can be worn instead of the lifeline. Due to the obvious hazards associated with working near the waters edge during inclement weather, field activities may be temporarily suspended or terminated at the discretion and direction of the FOL or SSO.

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 (marshes and lakes), alligators are also assumed to be potentially present at the NAS Jacksonville 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 HSGM.

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.

6.3.1 Inclement Weather

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

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	<ol style="list-style-type: none"> 1. Weather conditions should be monitored for further advisories. 2. 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.	<ol style="list-style-type: none"> 3. Work should be suspended in areas where lightning, high winds and rainfall could pose a threat to life. 4. 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.	<ol style="list-style-type: none"> 5. Weather conditions should be monitored for further advisories. 6. Prepare for possible evacuation by local officials
Hurricane Warning	Hurricane conditions are expected in the specified area of the warning, usually within 24 hours.	<ol style="list-style-type: none"> 7. 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. The local station broadcasting in the Jacksonville area is KHB-39 at 162.550 megahertz.

7.0 AIR MONITORING

It is possible that the site contaminants (VOCs) could be present in concentrations to present an inhalation hazard during planned site activities. A direct reading instrument will be used to monitor worker exposures to VOCs present at the site. For this project, a Photoionization Detector (PID) or a Flame Ionization Detector (FID) will be used to monitor the air. For the identified contaminants, the use of personal protective equipment and the observance of the other control requirements have been selected to minimize potential for personnel exposures to hazardous concentrations (known or unknown) of site contaminants.

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. If the appropriate instrument Action Level is exceeded (see below), the following process will be followed:

- The SSO shall order all personnel to stop work and 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.

7.1.1 Instrument Action Levels

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

- **PID Action Level:** Any sustained reading of 95 ppm above background for 4 exposures of 5 minutes with no single exposure greater than 175 ppm in any one work day.

- **FID Action Level:** Any sustained reading of 45 ppm above background for 4 exposures of 5 minutes with no single exposure greater than 140 ppm in any one work day.

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 SSO is responsible for ensuring that air monitoring instruments are used in accordance with the specifications of this HASP and with manufacturer's specifications/recommendations. In addition, the SSO is also responsible for ensuring that 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 SSO must document the following information for each use of an air monitoring device:

- Date, time, and duration of the reading
- Site location where the reading was obtained
- Instrument used (e.g., PID, FID, etc.)

- Personnel present at the area where the reading was noted
- Other conditions that are considered relevant to the SSO (such as weather conditions, possible instrument interferences, etc.)

8.0 TRAINING/MEDICAL SURVEILLANCE REQUIREMENTS

8.1 INTRODUCTORY/REFRESHER/SUPERVISORY TRAINING

This section is included to specify health and safety training and medical surveillance requirements for Tetra Tech personnel participating in on-site activities. Tetra Tech personnel must complete 40 hours of introductory hazardous waste site training prior to performing work at the NAS Jacksonville. 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 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 Activity Hazard Analysis with the planned task participants. A short meeting may also be held at the end of the day to discuss the operations completed and any problems encountered.

8.3 MEDICAL SURVEILLANCE

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

9.0 SITE CONTROL

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

9.1 EXCLUSION ZONE

The exclusion zone will be considered the areas of the site of known or suspected contamination. Therefore, the exclusion zones for this project will be limited to those areas of the site where active work is being performed. The exclusion zone will be a 10 foot radius from the point of the sampling event or as deemed appropriate by the FOL. This area may be identified through means such as, barrier tape, cones, and/or postings to inform and direct personnel.

9.2 CONTAMINATION REDUCTION ZONE

The contamination reduction zone 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 away from potential exposure to site contaminants during normal working conditions or foreseeable emergencies.

9.4 ACTIVITY HAZARD ANALYSIS

Exclusion Zone work conducted in support of this project will be performed using Activity Hazard Analysis to guide and direct field crews on a task by task basis. Completed Activity Hazard Analysis for the work to be performed are provided in Attachment III. These AHAs were completed as part of the development of

this HASP. It is the SSO's responsibility to review the completed AHA's with the task participants as part of a pre-task tail gate briefing session. This will ensure that site-specific considerations and changing conditions are appropriately incorporated into the AHA's, provide the SSO with a structured format for conducting the tail gate sessions, as well will also give personnel an opportunity to ask questions and make suggestions. The Activity Hazard Analysis requires the signature of the FOL or SSO.

9.5 SITE VISITORS

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

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

Non-Department of Defense (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 PM. Upon gaining access to the site, site visitors wishing to observe operations in progress will be escorted by a Tetra Tech representative and shall be required to meet the minimum requirements discussed below:

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

- In addition, to enter the site operational zones during planned activities, visitors will be required to first go through site-specific training covering the topics stipulated in Section 8.2 of this HASP.

Once the site visitors have completed the above items, they will be permitted to enter the 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. Visitors not meeting the requirements, as stipulated in this plan, for site clearance will not be permitted to enter the site operational zones during planned activities. Any incidence of unauthorized site visitation will cause 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 base security personnel.

9.6 SITE SECURITY

Site security will be accomplished using existing base security resources and procedures, supplemented by Tetra Tech or subcontractor personnel, if necessary. Tetra Tech will retain control over active operational areas. The first line of security will take place at the station wide fences restricting the general public. The second line of security will take place at the work site referring interested parties to the FOL. The FOL will serve as a focal point for site personnel and will serve as the final line of security and the primary enforcement contact.

9.7 SITE MAP

Once the areas of contamination, access routes, topography, and dispersion routes are determined, a site map will be generated and adjusted as site conditions change. These maps will be posted to illustrate up-to-date collection of contaminants and adjustment of zones and access points.

9.8 BUDDY SYSTEM

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

9.9 MATERIAL SAFETY DATA SHEET (MSDS) REQUIREMENTS

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

9.10 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 not anticipated that bulk hazardous materials (over 55-gallons) will be handled at any given time as part of this scope of work. It is also not anticipated that such spillage would constitute a danger to human health or the environment. However, as the job progresses, the potential may exist for accumulating IDW such as decontamination fluids in a central staging area. As needed, 55-gallon drums will be used to contain decontamination fluids generated during field activities. Once the fluids and other materials have been characterized, they can be removed from this area and properly disposed. Because these fluids and soils remained uncharacterized while in the staging area, a spill containment program will be developed and instituted as part of this HASP.

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

10.4 PERSONNEL TRAINING AND SPILL PREVENTION

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

10.5 SPILL PREVENTION AND CONTAINMENT EQUIPMENT

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

- Sand, clean fill, vermiculite, or other non combustible absorbent (Oil-dry)
- Drums [55-gallon U.S. Department of Transportation (DOT) 1A1 or 1A2]
- Shovels, rakes, and brooms
- Container labels

10.6 SPILL CONTROL PLAN

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

- Notify the SSO or FOL immediately upon detection of a leak or spill.
- Activate emergency alerting procedures for that area to remove non-essential personnel.
- Employ the PPE stored at the staging area.
- Take immediate actions to stop the leak or spill by plugging or patching the container or raising the leak to the highest point in the vessel. Spread the absorbent material in the area of the spill, covering it completely.
- Transfer the material to a new vessel; collect and containerize the absorbent material. Label the new container appropriately. Await analyses for treatment and disposal options.
- Re-containerize spills, including 2-inch of top cover impacted by the spill. Await test results for treatment or disposal options.

It is not anticipated that a spill will occur that the field crew cannot handle. Should this occur, notification of the appropriate Emergency Response agencies will be carried out by the FOL or SSO in accordance with the procedures discussed in Section 2.0 of this HASP.

11.0 CONFINED-SPACE ENTRY

It is not anticipated under the proposed scope of work that confined space and permit-required confined space activities will be conducted. Therefore, personnel under the provisions of this HASP are not allowed under any circumstances to enter confined spaces.

A confined space is defined as a space that:

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

A Permit-Required Confined Space is a confined space that has one or more of the following characteristics:

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

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

12.0 MATERIALS AND DOCUMENTATION

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

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

12.1 MATERIALS TO BE POSTED AT THE SITE

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

- **Chemical Inventory Listing (posted)** - This list represents the chemicals brought on site, including decontamination solutions, sample preservations, fuel, etc. This list should be posted in a central area.
- **MSDSs (maintained)** - The MSDSs should also be in a central area accessible to the site personnel. These documents should match the listings on the chemical inventory list for the substances employed on-site. It is acceptable to have these documents within a central folder and the chemical inventory as the table of contents.
- **The OSHA Job Safety & Health Protection Poster (posted)** - This poster should be conspicuously posted in places where notices to employees are normally posted, as directed by 29 CFR 1903.2 (a)(1). Each FOL shall ensure that this poster is not defaced, altered, or covered by other material. The law also states that reproductions or facsimiles of the poster shall be at least 8 1/2 by 14 inches with 10 point type.

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

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

13.0 ACRONYMS AND ABBREVIATIONS

ACGIH	American Conference of Governmental Industrial Hygienists
CERCLA	Comprehensive Environmental Response, Compensation, and Liabilities Act
CFR	Code of Federal Regulations
CIH	Certified Industrial Hygienist
CLEAN	Comprehensive Long-Term Environmental Action Navy
CSP	Certified Safety Professional
CTO	Contract Task Order
DOD	Department of Defense
DOT	Department of Transportation
DRI	Direct Reading Instrument
FID	Flame Ionization Detector
FOL	Field Operations Leader
HASP	Health and Safety Plan
HIPAA	Health Insurance Portability and Accountability Act
HSM	Health and Safety Manager
IDW	Investigation Derived Waste
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)
PEL	permissible exposure limit
PHSO	Project Health and Safety Officer
PID	Photoionization Detector
PPE	Personal Protective Equipment
ppm	parts per million
SOP	Standard Operating Procedure
SSO	Site Safety Officer
STEL	short term exposure limit
TLV	threshold limit value
PM	Project Manager
TWA ₈	time weighted average 8-hours
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound

ATTACHMENT I

MEDICAL DATA SHEET

MEDICAL DATA SHEET

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

Project _____

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?

Time individual began work

Yes [] No []

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

Safety equipment

Provided? Yes [] No []

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

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

NOTIFICATIONS

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

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

Yes [] No []

Date of report

H&S Personnel Notified

Time of report

Time of Report

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

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



INJURY / ILLNESS DETAILS

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

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 at the site.

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 checkboxes for 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 with 4 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)

Table with 4 columns for incident types.

INCIDENT DETAILS

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

Horizontal lines for describing incident results.

Response Actions Taken:

Horizontal lines for describing response actions.

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

Agency(s) Contact Name(s)

Input fields for agency and contact name.

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)

Firefighting 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 1 - Tetra Tech, Vehicle 2 - Other Vehicle), and Agent information.



DRIVER INFORMATION
Vehicle Number 1 - Tetra Tech Vehicle
Vehicle Number 2 - Other Vehicle
Driver's Name, Address, Phone Number, Date of Birth, Driver's License #, Licensing State, Gender
Was traffic citation issued to Tetra Tech driver? Yes No
Citation #, Citation Description
PASSENGERS IN VEHICLES (NON-INJURED)
List all non-injured passengers (excluding driver) in each vehicle.
Information related to persons injured in the accident (non-Tt employees) is captured in the section below on this form.
Injured Tt employee information is captured on FORM IR-A
Vehicle Number 1 - Tetra Tech Vehicle
Vehicle Number 2 - Other Vehicle
How many passengers (excluding driver) in the vehicle?
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?
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?
OTHER PROPERTY DAMAGE
Describe damage to property other than motor vehicles
Property Owner's Name, Property Owner's Address



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Safety Excellence

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INCIDENT FORM IR-C

COMPLETE AND SUBMIT DIAGRAM DEPICTING WHAT HAPPENED

A large, empty rectangular area with a black border, intended for drawing a diagram depicting what happened during an incident.

ATTACHMENT III

ACTIVITY HAZARD ANALYSIS



ACTIVITY HAZARD ANALYSIS (AHA)

Site Name: Hangar 1000 at NAS Jacksonville, Jacksonville, Florida.

Task: Mobilization / Demobilization

Prepared by	J. K. Laffey	Date	09/2011	FOL	
Reviewed by	J. Carothers PhD	Date	09/2011	SSO	

TASK STEPS	HAZARDS	CRITICAL SAFETY PROCEDURES AND CONTROLS
<ul style="list-style-type: none"> • Assembling equipment and supplies • Performing initial/exit inspections of the intended work areas • Arranging for site access, notifying appropriate client contacts • Performing equipment inspections of vehicles arriving/preparing to depart the site • Collecting and confirming applicable worker training and medical compliance documentation 	<ol style="list-style-type: none"> 1. Minor cuts, abrasions or contusions 2. Heavy lifting (muscle strains and pulls) 3. Vehicular traffic when moving large equipment to the support area 4. Intermittent high noise levels 	<ol style="list-style-type: none"> 1. Wear cut-resistant gloves when handling items with sharp or rough edges. 2. Practice safe lifting techniques (use mechanical lifting devices such as a dolly whenever possible, ensure clear path of travel, good grasp on object, perform "test lift" to gauge ability to safely make the lift, lift with legs not back, obtain help when needed to lift large, bulky, or heavy items). 3. Designate vehicle and equipment staging areas. Inform site personnel of heavy traffic areas and of their responsibility to stay clear of moving vehicles. In high traffic areas, wear high-visibility vests. 4. Operators/nearby personnel are to wear hearing protection if noise levels are such that they must raise their voice in order to communicate with someone who is within arm's reach (approx. 2') of them. SSO is responsible for determining and designating when hearing protection is required. Hearing protection is to consist of either ear muffs or plugs that have a noise reduction rating (NRR) of at least 25 dB.
EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Hand tools (dollies, hand carts, hand knives, etc.)	Visual inspection prior to use by user.	Review of AHA during pre-task tailgate safety briefing with all intended task participants.

ACTIVITY HAZARD ANALYSIS
Mobilization/Demobilization
 Page 2 of 2

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
<p>Personal Protective Equipment: Minimum: Safety toe boots, safety glasses. Optional items: Hardhat, hearing protection. HTRW: None anticipated for this task.</p>	<p>Initial PPE inspection performed by SSO. Ongoing (prior to each use) inspections responsibilities of PPE users.</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 any onsite 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)

Site Name: Hangar 1000 at NAS Jacksonville, Jacksonville, Florida.

Task: Groundwater sampling, monitoring well purging and development, and surface water sampling.

Prepared by	J. K. Laffey	Date	09/2011	FOL	
Reviewed by	J. Carothers PhD	Date	09/2011	SSO	
Task Steps		Hazards		Critical Safety Procedures and Controls	
Sampling site set up		<ol style="list-style-type: none"> 1. Minor cuts, abrasions or contusions 2. Slips, Trips, Falls 3. Insect bites 4. Vehicular traffic 5. Noise 		<ol style="list-style-type: none"> 1. When handling equipment and tools wear cut-resistant gloves when handling items with sharp or rough edges. 2. Clear intended work areas and walking paths of ground hazards. Practice good housekeeping to keep the site clear of obstructions, materials, equipment and other tripping hazards. Ensure that work boots have adequately-aggressive sole design. Use caution when working on uneven and wet ground. 3. Shake out boots before donning. Use insect repellants (products containing DEET should be applied to exposed skin, products containing Permethrin should be applied to clothing only. Follow manufacturer's recommendations. Open each well in a cautious manner checking for insects and other natural hazards that may be present. 4. The sample locations are located in an active air craft hangar and on a busy roadway. Watch for moving vehicles and airplanes. Notify local worksite supervisors of your presence. Wear high visibility clothing. Use traffic cones to mark the Exclusion Zone. 5. Operators/nearby personnel are to wear hearing protection if noise levels are such that they must raise their voice in order to communicate with someone who is within arm's reach (approx. 2') of them. SSO is responsible for determining and designating when hearing protection is required. Hearing protection is to consist of either ear muffs or plugs that have a noise reduction rating (NRR) of at least 25 dB. 	
Taking groundwater samples using a small		<ol style="list-style-type: none"> 1. Chemical exposure to low concentrations of VOCs. 		<ol style="list-style-type: none"> 1. Wear surgeons gloves when handling potentially-contaminated media and samples, avoid contact with potentially-contaminated 	

ACTIVITY HAZARD ANALYSIS

Groundwater sampling, monitoring well purging and development, and surface water sampling

Task Steps	Hazards	Critical Safety Procedures and Controls
battery-operated pump and placing into sample containers		<p>media to the extent possible, follow good decontamination and practice good personal hygiene (hands and face washing) when exiting work area, hand-to-mouth activities in the work area will be prohibited (eating, drinking, smoking, etc.).</p> <p>NOTE: Open well head carefully and allow a few minutes for any vapors to off gas in the atmosphere before sampling.</p> <p>Exposure via inhalation , dermal contact and ingestion represent some limited concern during this task. Initially and then periodically screen worker breathing zone with a PID or FID. If readings above daily-established background levels (BGLs) are noted in borehole, monitor worker breathing zone (BZ) areas. If readings in worker BZ areas exceed:</p> <ul style="list-style-type: none"> • PID Action Level: Any sustained reading of 95 ppm above background for 4 exposures of 5 minutes with no single exposure greater than 175 ppm in any one work day. • FID Action Level: Any sustained reading of 45 ppm above background for 4 exposures of 5 minutes with no single exposure greater than 140 ppm in any one work day. <p>After at least 5 minutes, SSO will approach from upwind direction screening BZ areas. Work may resume when readings in the BZ return to BGLs.</p>
Surface water sampling	<ol style="list-style-type: none"> 1. Dermal contact with sample media 2. Slips, trips, falls from wet floor surfaces. 3. Water hazards 	<ol style="list-style-type: none"> 1. Wear surgeon's gloves during sample collection. No hand-to-mouth activities permitted in work areas, wash hands after sample collection and sample handling activities. 2. Wear work shoes equipped with slip-resistant soles. Maintain good housekeeping in work area. Avoid spilling water samples on floor surfaces, and if this occurs, remove water puddles. 3. If sufficient water is flowing in the drainage ditch, the field team shall employ lifelines (tie-off procedure), safety harnesses, when within 4 feet of the waters edge. A personal floatation device (at least a United States Coast Guard Type III) can be worn instead of the lifeline.
Prepare sample bottles and dress in appropriate PPE.	<ol style="list-style-type: none"> 1. Burn or corrosion from acid spillage, if sample bottles do not have acid already in them. 	<ol style="list-style-type: none"> 1. Wear protective gloves and safety glasses or goggles when transferring acid from storage container to sample containers. 2. Ensure that gloves are appropriate for acids.

ACTIVITY HAZARD ANALYSIS

Groundwater sampling, monitoring well purging and development, and surface water sampling

EQUIPMENT	INSPECTION	TRAINING
Peristaltic pump, tubing, sample collection tools and containers (jars, spatulas, spoons, etc.)	Visual inspection prior to use by user.	Training/experience in proper sample collection, handling and chain of custody requirements.
<p>Personal Protective Equipment: Minimum: nitrile surgeon's type gloves, safety toe boots, safety glasses Nitrile gloves, PID/FID monitoring.</p> <p>Optional items: Hardhat and hearing protection.</p> <p>HTRW: 1,1-dichloroethane, 1,1-dichloroethene, 1,2-dichloroethene, naphthalene, toluene, 1,1,1-trichloroethane, trichloroethane and xylenes</p>	<p>Initial PPE inspection performed by SSO. Ongoing (prior to each use) inspections responsibilities of PPE users.</p> <p>PID/FID to be subjected to calibration and operational checks in accordance with manufacturer's recommendations (but not less than daily).</p>	<p>OSHA 40 Hazardous Waste Operations and Emergency Response (HAZWOPER) training, plus appropriate 8-hour annual refresher training for all task participants. Supervisors must have completed additional 8 hours of HAZWOPER training. ALSO: Review of AHA during pre-task tailgate safety briefing with all 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> <p>SSO trained in proper calibration, use, and care of air monitoring devices used (PID/FID). This is a general component of 40 hour HAZWOPER training, and SSO must become very familiar with the Operator's Manual for any instrument used.</p>

I have read and understand this AHA:

Name (Printed)	Signature	Date



ACTIVITY HAZARD ANALYSIS (AHA)

Site Name: Hangar 1000 at NAS Jacksonville, Jacksonville, Florida.

Task: Decontamination

Prepared by:	J. K. Laffey	Date	09/2011	FOL	
Reviewed by:	J. Carothers PhD	Date	09/2011	SSO	

Task Steps	Hazards	Critical Safety Procedures and Controls
Personal Decontamination <ul style="list-style-type: none"> Equipment drop Segregated removal of PPE (wash and rinse reusable items, dispose of non-reusable items) 	<ol style="list-style-type: none"> 1. Slips, Trips, Falls 2. Exposure to contaminated media 	<ol style="list-style-type: none"> 1. Clear intended decon area location of roots, weeds, limbs and other ground hazards. Practice good housekeeping to keep the site clear of obstructions, materials, equipment and other tripping hazards. Wear appropriate foot protection to prevent slips and trips. Use caution when working on uneven and wet ground surfaces. 2. Follow good decontamination practices (work from top down and outside in). Nitrile gloves are to be the last item of PPE removed. Wash hands and face following personal decontamination and prior to performing any hand-to-mouth activity.
Decontamination of sampling equipment	<ol style="list-style-type: none"> 1. Slips/trips/falls 2. Exposure to contaminated media 	<ol style="list-style-type: none"> 1. Keep decon areas orderly, maintain good housekeeping, spread light coating of sand on decon pad liner to increase traction. 2. Follow good decontamination practices (work from top down and outside in). Surgeon's gloves are to be the last item of PPE removed. Wash hands and face following personal decontamination and prior to performing any hand-to-mouth activity.

Equipment	Inspection	Training
Hand tools (hand brushes, garden sprayers, etc.) Pressure washer PID/FID for screening to ensure effective decontamination	Visual inspection prior to use by user. Check wooden handles for cracks or splinters. PID/FID to be calibrated and operated in accordance with manufacturer's recommendation (daily)	None required. Review manufacturer's instructions and safety guidelines prior to use.. SSO trained in proper calibration, use, and care of air monitoring devices used (PID/FID). This is a general component of 40 hour HAZWOPER training, and SSO must become very familiar with the Operator's Manual for any instrument used. Review manufacturers operating and maintenance manual for monitoring instruments used.

ACTIVITY HAZARD ANALYSIS

Decontamination

Equipment	Inspection	Training
<p>Personal Protective Equipment Minimum: Safety toe boots, safety glasses. 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 used. Optional items: Hardhat, hearing protection as specified by the SSO. HTRW: 1,1-dichloroethane, 1,1-dichloroethene, 1,2-dichloroethene, naphthalene, toluene, 1,1,1-trichlorethane, trichloroethane and xylenes</p>	<p>Initial PPE inspection performed by SSO.</p> <p>Ongoing (prior to each use) inspections responsibilities of PPE users.</p>	<p>OSHA 40 Hazardous Waste Operations and Emergency Response (HAZWOPER) training, plus appropriate 8-hour annual refresher training for all 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)

Site Name: Hangar 1000 at NAS Jacksonville, Jacksonville, Florida.

Task: IDW Management

Prepared by	J. K. Laffey	Date	09/2011	FOL	
Reviewed by	J. Carothers PhD	Date	09/2011	SSO	

Task Steps	Hazards	Critical Safety Procedures and Controls
Filling, moving 55-gallon drums of IDW	<ol style="list-style-type: none"> 1. Heavy lifting 2. Struck by/pinches compressions 3. Falling objects (drums) 4. Slips, Trips, Falls 5. Foot hazards 6. Strains/sprains due to heavy lifting 7. Minor contusions, abrasions, cuts 	<ol style="list-style-type: none"> 1. Practice safe lifting techniques (use mechanical lifting devices such as a dolly whenever possible, ensure clear path of travel, good grasp on object, perform "test lift" to gauge ability to safely make the lift, lift with legs not back, obtain help when needed to lift large, bulky, or heavy items). 2. Exercise caution when handling drums. Position drums so that there is adequate room between them for placement and repositioning. 3. Do not stack drums on top of each other. Do not place more than 4 drums to a pallet. Leave at least 4 ft. of clearance between pallets for clear access. 4. Maintain good housekeeping in IDW storage areas, keeping it clear of loose debris and other potential tripping hazards. Wear appropriate foot protection to prevent slips and trips. Use caution when working on uneven and wet ground surfaces. 5. Safety toe foot protection will be required for IDW container handling activities. 6. 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). 7. Wear cut-resistant gloves when handling items with sharp or rough edges.

ACTIVITY HAZARD ANALYSIS

IDW Management

Equipment	Inspection	Training
Hand tools (drum dollies, wrenches, etc.)	Visual inspection prior to use by user. Check wooden handles for cracks or splinters.	All personnel participating in this activity must be current with HAZWOPER training requirements.
<p>Personal Protective Equipment Minimum: Safety toe boots, safety glasses Optional items: Hardhat, cotton or leather work gloves. If contact with IDW is likely, wear chemical-resistant coveralls (e.g., Tyvek) or aprons and surgeon's nitrile gloves under leather/cotton work gloves.</p> <p>HTRW: 1,1-dichloroethane, 1,1-dichloroethene, 1,2-dichloroethene, naphthalene, toluene, 1,1,1-trichlorethane, trichloroethane and xylenes</p>	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 visual observations of worker activities.

I have read and understand this AHA:

Name (Printed)	Signature	Date

ATTACHMENT IV

OSHA POSTER

Job Safety and Health

It's the law!

OSHA

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

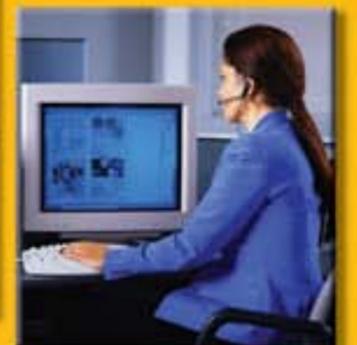
EMPLOYEES:

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

EMPLOYERS:

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

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



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

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

OSHA 3185-12-06R