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FINAL ACCIDENT PREVENTION PLAN FOR OLD JEEP TRAIL TREATMENT AREA OF
SOLID WASTE MANAGEMENT UNIT 3 (SWMU 3) AMMUNITION BURNING GROUNDS OLD
JEEP TRAIL NAVAL SUPPORT ACTIVITY CRANE IN

5/1/2014
TETRA TECH

FINAL

**Accident Prevention Plan
For
Old Jeep Trail Treatment Area
Of
SWMU 3
Ammunition Burning Grounds
(ABG)/Old Jeep Trail
Naval Support Activity (NSA) Crane
Crane, Indiana**



**Naval Facilities Engineering Command
Mid-West**

Contract No. N62470-08-D-1001

Contract Task Order C065

May 2014

**ACCIDENT PREVENTION PLAN
FOR
OLD JEEP TRAIL TREATMENT AREA
OF
SWMU 3
AMMUNITION BURNING GROUNDS
(ABG)/OLD JEEP TRAIL**

**NAVAL SUPPORT ACTIVITY (NSA) CRANE
CRANE, INDIANA**

Prepared for:

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Submitted by:

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**Prepared under:
Contract No. N62470-08-D-1001
Contract Task Order C065**

**Revision 1
May 2014**

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ATTACHMENTS

- I Unexploded Ordnance and Chemical Warfare Agents Activities Operating Procedures
- II Site-Specific Training Documentation Form and Employee Training/Qualifications/Medical Clearance
- III OSHA Poster

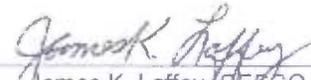
ACRONYMS

§	Section
ACGIH	American Conference of Governmental Industrial Hygienists
AHA	Activity Hazard Analysis
APP	Accident Prevention Plan
BBP	Bloodborne Pathogen
BG	Background
BLS	Bureau of Labor Statistics
C	Centigrade or Celsius
CESCO	Certified Environmental and Safety Compliance Officer
CFR	Code of Federal Regulations
CIH	Certified Industrial Hygienist
CLEAN	Comprehensive Long - Term Environmental Action Navy
CPR	Cardiopulmonary Resuscitation
CRZ	Contamination Reduction Zone
CSP	Certified Safety Professional
TO	Task Order
DART	Days Away/Restricted Duty/Transfer
dB	decibels
DEET	n,n-diethyl-meta-toluamide
DOD	Department of Defense
DOT	Department of Transportation
EM	Engineer Manual
EPA	Environmental Protection Agency
F	Fahrenheit
FOL/SSO	Field Operations Leader/Site Safety Officer
FSP	Field Sampling Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
HSM	Health and Safety Manager
IDW	Investigative Derived Waste
IM	Interim Measures
lbs	pounds
mg/kg	milligrams per kilogram
mg/m ³	milligrams per cubic meter
mm	millimeter
NAICS	North American Industry Classification System

NRR	Noise Reduction Rating
NSA	Naval Support Activity
OEL	Occupational Exposure Limit
OSHA	Occupational Safety and Health Administration (U.S. Department of Labor)
PHSO	Project Health and Safety Officer
PM	Project Manager
POC	Point of Contact
PPE	Personal Protective Equipment
RAC	Risk Assessment Code
RCIR	Recordable Case Incident Rate
RPM	Remedial Project Manager
SOP	Standard Operating Procedure
SSHP	Site Safety and Health Plan
TSS	Technical Support Services
TP	Technical Paper
TWA	Time-Weighted Average
USACE	United States Army Corps of Engineers

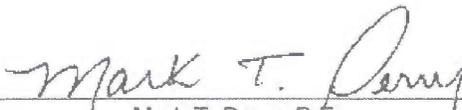
1.0 SIGNATURE SHEET

By their signature, the undersigned hereby certify that this Accident Prevention Plan (APP) has been prepared in accordance with the United States Army Corps of Engineers (USACE) Engineering Manual (EM) 385-1-1, and has been reviewed and approved for use during field operations at Naval Support Activity (NSA) Crane, Indiana.



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Ralph Basinski

Project Manager - Plan Concurrence (412) 921-8308

2.0 BACKGROUND INFORMATION

2.1 CONTRACTOR

Tetra Tech, Inc. (Tetra Tech) will conduct the field activities identified in this Accident Prevention Plan (APP).

2.2 CONTRACT NUMBER

This work is authorized under the Comprehensive Long - Term Environmental Action Navy (CLEAN) contract, administered through the U.S. Navy Southeast, Naval Facilities Engineering Command (NAVFAC), as defined under Contract No. N62470-08-D-0001; Contract Task Order (CTO) C065.

2.3 PROJECT NAME

Resource Conservation and Recovery Act (RCRA) Field Investigation (FI) Old Jeep Trail Treatment Area of Solid Waste Management Unit (SWMU) 3 Ammunition Burning Grounds (ABG)/Old Jeep Trail

2.4 PROJECT DESCRIPTION

This section describes the project tasks that will be performed at NSA Crane under this task order. The investigation strategy for SWMU 3 is to implement soil contamination delineation sampling (lead, RDX, and TNT) for the Corrective Measures Design phase of the project at five discrete "hot spot" areas in order to provide soil excavation design data. If new tasks are to be performed at the site, this section will be modified accordingly.

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

2.5 LOCATION

NSA Crane is located in a rural, sparsely populated region of south-central Indiana, approximately 75 miles southwest of Indianapolis and 71 miles northwest of Louisville, Kentucky immediately east of Crane Village and Burns City. NSA Crane encompasses 62,463 acres (approximately 98 square miles), most of which is located in the northern portion of Martin County. Smaller portions are located in Greene, Daviess, and Lawrence Counties. Most of NSA Crane is forested, and the surrounding area is wooded or

farmed land. The OJT portion of SWMU 3 Old Jeep Trail is located in the eastern portion of NSA Crane along Little Sulphur Creek (LSC).

2.6 PHASES OF WORK REQUIRING ACITIVITY HAZARD ANALYSIS (AHA)

The specific tasks to be conducted for this task at NSA Crane include the following:

- Mobilization/demobilization
- UXO escort sub-surface anomaly avoidance
- Drilling, Direct-Push Technology (DPT) boring
 - Subsurface Soil Sampling,
- Hand augering for surface soil sampling
- X-ray floursence (XRF)
- Investigation-Derived Waste (IDW) Management
- Global Positioning System (GPS) Survey
- Field Decontamination Procedures

3.0 STATEMENT OF SAFETY AND HEALTH POLICY

Tetra Tech is committed to providing our employees with a safe and healthful workplace. It is the goal of Tetra Tech to continue excellent safety performance on NAVFAC contracts to support the Navy in their safety efforts. Specifically, Tetra Tech will perform work in a manner that is consistent with the Zero Incident Philosophy. It is our goal to plan and perform the work in a manner that integrates safety and health considerations so that worker injuries or illnesses, environmental releases/impacts, or property damage are eliminated. In addition to the line and staff management functions described in this APP, each individual performing work under this contract has the responsibility for his/her own personal health and safety, as well as for assisting in assuring the health and safety of co-workers. This element is also the first one listed in our corporate Health and Safety Policy Statement, which requires that employees "recognize a *personal* responsibility for their own health and safety and for actions that affect the health and safety of fellow employees." This employee responsibility includes observing specified health and safety requirements and communicating with the designated Field Operations Leader on matters such as the effectiveness of specified control measures, identification of new potential hazards, and other related issues.

An employee's failure to adhere to the requirements of this APP, or to observe specified safety requirements and restrictions, or to properly use identified protective equipment may lead to injury or illness. As a result, deviation from safety and health procedures is not tolerated. Failure to comply with health and safety procedures and requirements will lead to reprimand up to and including dismissal.

Health and safety-related information is communicated to employees through meetings, postings, written communications, and reporting of hazards.

This APP establishes the requirements that the Site Safety and Health Officer (SSHO) must follow to respond to changing conditions by knowing when to stop work and call for additional guidance from a Certified Industrial Hygienist (CIH)/Certified Safety Professional (CSP). The Project Health and Safety Manager (PHSM) will provide the SSHO with additional information, or request additional information, in order to fully evaluate the situation. This type of communication provides the SSHO with the necessary support and knowledge to equip the workers with the required protection either through adjustment to the work procedures, or through additional techniques, tools, or equipment. Personal protective equipment (PPE) may be altered to provide additional protection to the workers, based on the information provided by the SSHO to the PHSM. This APP also delineates health and safety responsibilities and assigns those responsibilities to project and office personnel.

3.1 TETRA TECH SAFETY STATISTICS

Table 3-1 presents safety statistics for Tetra Tech for the last 3 calendar years compared to the national averages for our industry. This comparison uses data collected by the United States Department of Labor, Bureau of Labor Statistics (BLS) for different types of employers, segregated by North American Industry Classification System (NAICS) codes.

**TABLE 3-1
COMPARISON OF TETRA TECH AND 2011 BLS DATA FOR NAICS CODE 541620**

	NAICS 541620 Professional and Business Services 2011	Tetra Tech 2011	Tetra Tech 2012	Tetra Tech 2013
Total Recordable Incident Rate (TRIR)	0.8	0.57	0.67	0.69
Lost Workday Incident Rate (LWDIR)	0.4	0.14	0.10	0.15

The data comparison illustrates that Tetra Tech's performance compares favorably with the most-recent national averages for the environmental engineering and hazardous waste services industries. Raw data for these statistics can be found in the OSHA Form 300A attached

Tetra Tech Man Hours Worked

- 2011 23,725,239
- 2012 24,904,295
- 2013 24,812,849

Tetra Tech Experience Modification Rates (Policy Year October 1 - September 30):

- 2010-2011 0.76
- 2011-2012 0.76
- 2012-2013 0.80

4.0 RESPONSIBILITIES AND LINES OF AUTHORITY

4.1 STATEMENT OF RESPONSIBILITY

Tetra Tech, as the employer for staff that will be engaged in performing the work presented in this APP, fully recognizes and accepts ultimate responsibility for protecting the safety and health of our employees, and for the implementation of an effective Safety and Occupational Health program. No person shall be required or instructed to work in surroundings or under conditions that are unsafe or dangerous to his or her health. Each employee is responsible for complying with applicable safety and occupational health requirements, wearing prescribed safety and health equipment, reporting unsafe conditions/activities, preventing avoidable accidents, and working in a safe manner.

4.2 IDENTIFICATION AND ACCOUNTABILITY

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

4.2.1 Navy Personnel

The Navy personnel primarily responsible for this project are Mr. Howard Hickey who is the Remedial Project Manager (RPM) and Mr. Thomas Brent who is the Facility Point of Contact (POC).

4.2.2 Tetra Tech Personnel

4.2.2.1 *Project Manager– Karen Lyons, PE*

The Tetra Tech PM is responsible for the overall direction and implementation of health and safety for this work. The PM coordinates closely with the RPM who is responsible to oversee the project implementation, including scoping, data review, and evaluation for the USACE. This includes the responsibility for ensuring that:

- Work is appropriately planned and executed in accordance with contractual, regulatory, and internal requirements
- Adequate resources (including personnel, equipment, and supplies) are assembled, and made available to the FOL/SSO to safely and effectively accomplish the work.
- Ensure implementation of this APP through coordination with the HSM, and the PHSM, as applicable.

- Conduct periodic inspections.
- Participate in the incident investigations.
- Ensure APP has the required approvals before any site work is conducted.
- Ensure that the PHSM and HSM are informed of project scope changes that require modifications of the APP.
- Assume overall project responsibility for health and safety.
- Ensure that adequate resources are provided to the field staff to carry out their responsibilities as outlined below.

Ms. Lyons has 22 years professional experience in the environmental field. Ms. Lyons is a project manager for Navy CLEAN Northeast Contract and has acted as the Tetra Tech, Inc. Base Coordinator for Marine Corps Base Quantico, Virginia since 1999. As the Tetra Tech Base Coordinator, Ms. Lyons provides technical direction for all MCB Tetra Tech environmental projects. Ms. Lyons supports CERCLA, RCRA, and UST investigations (i.e., PA/SI, RI/FS, and RFI/CMS activities) in her role as a risk assessor. Ms. Lyons also acts in a quality assurance capacity by providing internal technical peer reviews of data and reports.

Ms. Lyons has performed a number of investigations as an analytical chemist, including: inorganic and miscellaneous wet-chemistry analyses (i.e., chloride, fluoride, nitrate, nitrite, oil and grease, solids determination). She has analyzed trace inorganics by flame and graphite furnace atomic absorption, gaseous vapor hydride generation, and cold vapor generation utilizing USEPA CLP and non-CLP methods and was responsible for sample preparation and digestion via numerous methods. Ms. Lyons also contributed to the improvement of the laboratory's analytical method and quality control program.

Her training certifications include:

- 40-Hour HAZWOPER Training, 29 CFR 1910.120 OSHA, 1991
- 8-Hour HAZWOPER Supervisory Training 29 CFR 1910.120 OSHA, 1999
- 8 Hour Refresher 29 CFR 1910.120 OSHA Refresher, annually
- CECOS Munitions Response Site Management Training, 2006

4.2.2.2 Health and Safety Manager – Matthew Soltis, CIH, CSP

The HSM is responsible for the development and administration of the company health and safety program. The HSM will act in an advisory capacity to PM and site personnel for project-specific health and safety issues. The Tetra Tech PM will establish a liaison between the RPM and the HSM on matters relating to health and safety. In the fulfillment of the duties of this position, the HSM will enlist the support

of safety and occupational health professionals, as appropriate. The HSM is responsible for the following actions:

- Developing, maintaining, and overseeing implementation of this APP
- Visiting project sites as needed to audit the effectiveness of the APP
- Remaining available to respond to project emergencies
- Developing modifications to the APP, as needed
- Evaluating occupational exposure monitoring/air sampling data and adjusting APP as necessary
- Serving as a Quality Control staff member
- Approving the APP by signature

Mr. Soltis is an occupational safety, health and security professional with over 30 years of professional experience. He is dual-certified in comprehensive practice for both occupational safety and industrial hygiene (CSP and CIH) and he has achieved national recognition in his areas of expertise by the American Industrial Hygiene Association, and has been elected as a Fellow of that organization. He has provided technical and management services to a wide diversity of clients both in the United States and overseas. This experience has involved numerous industries including manufacturing, construction, chemical processing, energy generation/transmission, R&D, and environmental sectors. Mr. Soltis has also served as Adjunct Professor for the Indiana University of Pennsylvania Safety Sciences Department, teaching course work in the fields of safety engineering and industrial hygiene.

The work under this contract, including this field effort, is subject to a comprehensive health and safety program developed, designed, and implemented by Mr. Soltis. Mr. Soltis serves as Corporate Manager of Health and Safety for Tetra Tech Technical Support Services (TSS) and as the HSM for the planned work addressed in this APP. He training experience includes:

- 40-Hour HAZWOPER Training, 29 CFR 1910.120 OSHA, 1988
- 8 Hour Refresher 29 CFR 1910.120 OSHA Refresher, annually
- 8-Hour Supervisory Training, 29 CFR 1910.120 OSHA, 1990
- OSHA 10-hour Construction Safety Training #31-003300669
- FEMA IS-200 ICS for Single Resources and Initial Action Incidents. June, 2009

4.2.2.3 Project Health and Safety Officer – James K. Laffey, CESCO

The PHSO is responsible for developing this APP in accordance with applicable OSHA and USACE EM 385 1-1 regulations. Specific responsibilities include:

- Providing information regarding site contaminants and physical hazards associated with the site
- Establishing air monitoring and decontamination procedures
- Assigning personal protective equipment based on task and potential hazards
- Determining emergency response procedures and emergency contacts
- Stipulating training requirements and reviewing training and medical surveillance certificates
- Providing standard work practices to minimize potential injuries and exposures
- Modifying this APP, as necessary

Mr. Laffey has served as a PHSO for a wide variety of Environmental Investigation/Remediation Projects for USACE since 1993. He is a certified Environmental and Safety Compliance Officer (CESCO) #464375803 by the National Registry of Environmental Professionals. His experience involves CERCLA investigations, remedial action projects, and baseline characterization studies (estimated at over 100 different projects). In this capacity, he is responsible for identifying site chemical and physical hazards and developing the site-specific HASP, providing technical guidance to field personnel to control or minimize site hazards. He is a certified instructor for all the OSHA HAZWOPER training programs including the 40-hour initial training, 8-hour supervisory training, and 8-hour annual refresher training. He is certified by the FEMA and the USEPA as an Incident Command System Instructor for IS 100 through 400. His training experience includes:

- OSHA Construction Safety and Health 30-hour Training #36-60070909, 2010
- OSHA 29 CFR 1910.120 40-hour HAZWOPER Training, 1990
- OSHA 29 CFR 1910.120 8-hour Annual Refresher Training 1991- 2014
- OSHA 29 CFR 1910.120 Supervisory 1991 and Refresher Training 1992-2014
- Safety in Excavation Training Course, 2002
- American Red Cross, First Aid and CPR/AED 2010

4.2.2.4 Field Operations Leader/Site Safety Officer (FOL/SSO) – Jim Goerd

The FOL/SSO is responsible for implementation of the project work plans in accordance with the APP, with the assistance of the FOL/SSO. The FOL manages field activities, executes the SAP, and enforces safety procedures as applicable to the SAP. Other duties include:

- Ensuring that the proper notifications are made prior to beginning work
- Verifying training and medical clearance of onsite personnel status in relation to site activities
- Selecting, applying, inspecting, and maintaining personal protective equipment
- Implementing Hazard Communication, Respiratory Protection Programs, and other health and safety programs as needed

- Providing site-specific training for onsite personnel
- Investigating accidents and injuries

As the Site Safety Officer the FOL/SSO is also responsible for ensuring that corrective measures have been implemented, appropriate internal and NSA Crane authorities have been notified, and follow-up reports have been completed. These duties may include the following:

- Select, inspect, implement, and maintain personal protective equipment
- Establish work zones and control points
- Implements air-monitoring program for onsite activities
- Verify training and medical status of onsite personnel status in relation to site activities
- Coordinate emergency services
- Provide site specific training for onsite personnel
- Investigate accidents and injuries
- Developing and maintaining current chemical inventories and Material Safety Data Sheets (MSDS)/Safety Data Sheets (SDS) files for hazardous chemicals that will be used/stored at that workplace
- Ensuring that onsite personnel who may use hazardous chemicals have access to and review pertinent MSDS/SDSs prior to using or dispensing such chemicals
- Ensuring compliance with container labeling requirements
- Providing input to the PHSO regarding the need to modify this APP or other health and safety documents as per site-specific requirements

Compliance with the requirements stipulated in this APP is monitored by the FOL/SSO and coordinated through the PHSO and HSM. The FOL/SSO must be notified of any on-site emergencies and is responsible for ensuring that the appropriate emergency procedures described in this section are followed. The FOL/SSO is also responsible for informing the RPM of major incidents and associated corrective actions.

Mr. Goerdts has over 20 years of professional environmental experience in both the government sector and private industry. He has experience with Department of Defense (DoD) munitions response program (MRP) project management and execution. Mr. Goerdts has conducted numerous on-site facility compliance inspections at a wide range of facilities. He has performed multimedia environmental sampling, including surface water, groundwater, soils, sediments, and air. He is an experienced professional in the preparation of technical/cost proposals for environmental scopes of work; preparation of project quality control guidelines/specifications and quality assurance plans. He has experience in writing field reports, quality assurance project plans, and other investigative documents. Mr. Goerdts has

coordinated the preparation of environmental permitting and investigation project documents which include RCRA air quality assessments, quality assurance project plans, RCRA facility investigation reports, and RCRA air permits, including development of graphics and figures, data analysis and interpretation. He also has experience in waste characterizations, air dispersion modeling, and air sampling techniques. Mr. Goerdts has experience with well purging techniques; sample collection, documentation, packaging, and shipping; decontaminating procedures; sampling protocols; and technical report writing. Additionally, he is experienced in the preparation of Phase I site assessment reports.

Mr. Goerdts has experience in the use of various field monitoring equipment such as multi-parameter water quality meters, turbidity meters, PIDs and FIDs, as well as equipment calibration and maintenance. He has experience in the use of field X-Ray Fluorescence (XRF) analyses, the use of Global Positioning Systems (GPS) and utilizing the SDI Rapid Assay field test kit for PCBs. His training includes:

- OSHA 29 CFR 1910.120 Certified; October, 2012
- C4 HAZWOPER Supervisory Training; October, 2012
- 30-Hour Occupational Safety and Health Construction Training; August, 2011

4.2.2.5 UXO Technician – Norm Piper

The Unexploded Ordnance (UXO) Technician will be responsible for advising the Project Manager on UXO matters, including the measures that will be necessary to effectively implement and adhere to the Unexploded Ordnance and Chemical Warfare Agents Activities SOP. (Attachment I). Duties will include the following:

- Conducting UXO avoidance surveys prior to and during site activities.
- Participating in site specific training sessions.
- Maintaining familiarity with the Tetra Tech UXO SOP.
- Conducting daily and in progress functional tests on instruments used in the survey
- Conducting the instrument assisted survey.
- Keeping current with pertinent new information and technologies.

Mr. Piper is currently working for Tetra Tech at the Atlanta office UXO department. His title is an UXO/MRP PM, whose responsibilities include managing UXO projects and personnel, provide logistical and administrative support, developing and reviewing documents required for projects including Explosives Safety Submissions, Explosives Site Plans, Work Plans, Health and Safety Plans, Munitions and Explosives of Concern Hazard Analysis, After Action Reports, Final Reports, and working to develop new projects.

Mr. Piper has more than four years of UXO experience. His experience includes the use of Trimble GPS hardware/software and Lecia GPS hardware/software. Mr. Piper also has experience as an equipment operator, including more than 250 hours as an excavator operator, 50 hours as a mini-excavator operator, and 200 hours as a skid steer operator. His training includes:

- Unexploded Ordnance School, May, 2009
- OSHA 40-Hour HAZWOPER, May, 2009
- OSHA 8-Hour Refresher, Feb, 2013
- AEC MMRP Training Aug, 2012

4.2.2.6 Site Personnel - Various

In addition to the line and staff management functions, each individual performing work under this contract has the responsibility for their own personal health and safety, as well as assisting in assuring the health and safety of their co-workers. This element is also the first one listed in our corporate Health and Safety Policy Statement, which requires that "each employee recognize a *personal* responsibility for their own health and safety and for actions that affect the health and safety of fellow employees." This employee responsibility includes observing specified health and safety requirements and communicating with the designated FOL/SSO on matters such as the effectiveness of specified control measures, identification of new potential hazards, and other related issues. Site Personnel are responsible to:

- Report any unsafe or potentially hazardous conditions to the FOL/SSO.
- Report injuries, illnesses, spills, fires, and property damage to the FOL/SSO.
- Maintain knowledge of the information, instructions, and emergency actions contained in this APP.
- Comply with rules, regulations, and procedures set forth in this APP and any revisions that are instituted.
- Initiate the Incident Report when involved in an incident/accident if able to do so.
- Inspect the tools and equipment, including PPE, daily prior to use.
- Conduct daily operations check of electronic equipment and annotate in the team logbook.
- Assist the FOL/SSO with implementation and compliance with the APP

4.2.2.7 Subcontractors and Suppliers

Tetra Tech will not use subcontractor and supplies during this CTO.

4.3 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 PM 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.

4.4 COMPETENT AND QUALIFIED PERSON(S)

The competent and qualified person for this project is ~~Mr. Chris Rumer~~. His resume and qualifications are listed in Section 4.2.2.5. A competent person is an individual who is capable of identifying existing and predictable hazards or working conditions that are hazardous, unsanitary, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate or control these hazards and conditions. The FOL/SSO has five years of field experience in environmental sampling, and safety and has detailed knowledge of and experience in air sampling situations.

4.5 REQUIREMENT OF DESIGNATED COMPETENT PERSON ON SITE

Work tasks at SWMU 3 will only be performed when the designated competent person is physically on the job site.

4.6 REQUIREMENTS OF PRE-TASK SAFETY AND HEALTH ANALYSIS

The FOL/SSO will conduct daily pre-shift tailgate safety meetings discussing the planned site activities, the hazards associated with each task, and the training required of personnel involved in these tasks. The related personal protective equipment or related work equipment will be inspected by the competent/qualified person before any work is started.

Tetra Tech requires that an Activity Hazard Analysis (AHA) be prepared for each job task to be performed at this site to identify hazards before they occur and provide mitigation measures. The AHAs focus on the relationship between the worker, the task, the tools, and the work environment. The AHAs are reviewed at the tailgate safety meeting at the beginning of each work day. These sessions inform each person of the potential hazards for each task and provide steps to take to eliminate or reduce hazards to an acceptable risk level. The AHAs are presented in the Section 10.0.

Personnel will be encouraged to report to the FOL/SSO any conditions or practices that they consider detrimental to their health or safety, or those they believe violate applicable health and safety standards.

Such reports may be made orally or in writing. Personnel who believe that an imminent danger threatens human health or the environment are encouraged to bring the matter to the immediate attention of the FOL/SSO for resolution. Job site activities presenting danger to life or limb should be stopped immediately and reported to the FOL/SSO for resolution. Near miss incidents are to be reported to the FOL/SSO who will record the information in the site logbook and in the Tetra Tech TOTAL System.

At least one copy of this APP will be available to site personnel. Each vehicle used on the job site will contain a copy of the APP to ensure quick and easy access by employees. In addition to a review of the AHAs, minor changes and any other relevant topics will be discussed by the FOL/SSO at the daily tailgate safety meeting. However, significant revisions must be discussed with the HSM and PM and approved prior to implementation.

It is the goal of Tetra Tech to continue its excellent safety performance on USACE contracts. Specifically, Tetra Tech will perform the work in a manner that is consistent with the Zero Incident Philosophy. In accordance with this philosophy, it is our stated goal to plan and perform the work in a manner that integrates safety and health considerations so that it is accomplished without experiencing any worker injuries or illnesses, environmental releases/impacts, or property damage events.

4.7 LINES OF AUTHORITY

Personnel who will be working on this project are covered by this APP. These documents shall be rigorously enforced during this field effort. Violators of the APP will be verbally notified upon first violation, and the violation will be noted by the FOL/SSO in the field logbook. Upon second violation, the violator will be notified in writing, and the Tetra Tech PM and the violator's supervisor will be notified. A third violation will result in a written notification and the violator's eviction from the site. The written notification will be sent to the human resources department and the HSM.

Any violations that are deemed to be serious, intentional, or otherwise egregious will be subject to immediate corrective action, up to and including removal from the site, and will not require adherence to this progressive, three-step disciplinary process.

In the Tetra Tech Health and Safety Program Summary, it is stated by the company Chief Executive Officer Mr. Daniel L. Batrack, "Management is responsible for ensuring that all aspects of the workplace, including offices and project locations, are safe and that any risks, hazards, and safety violations are brought to their attention, investigated, and corrected promptly. Tetra Tech's associates are responsible for complying with the H&S policy, programs and standards, and conducting their work safely and without detriment to themselves, other employees, other individuals or property.

Compliance with this policy is mandatory. Willful violation or negligent disregard of this policy will be considered cause for disciplinary action up to and including termination.”

4.7.1 Policies and Procedures Regarding Noncompliance

An employee’s failure to adhere to the requirements of this Accident Prevention Plan, the Project Specific Work and Safety Plans, or to observe specified safety requirements and restrictions or to properly use identified protective equipment may lead to injury or illness. As a result, deviation from safety and health procedures is not tolerated. Failure to comply with health and safety procedures and requirements will lead to reprimand up to and including dismissal.

4.7.2 Manager and Supervisor Accountability

The purpose of the Tetra Tech corporate Health and Safety Program is to define the health and safety standards required on a corporate wide basis. The corporate Health and Safety Program applies to all Tetra Tech employees and sets forth minimum requirements for subcontractors working under contract to Tetra Tech. The responsibilities, organizational structure, recordkeeping requirements, and evaluation of Tetra Tech’s corporate Health and Safety Program are outlined in detail in the Program Administration and Organizational Structure document:

- Senior Vice President of Administration has overall responsibility for the Tetra Tech corporate Health and Safety Program.
- Corporate Health and Safety Director
- Operational Unit Health and Safety Managers individuals assigned to health and safety administration within each Tetra Tech operating unit
- Operations Managers individuals who manage an office(s) within an operating unit of Tetra Tech
- Office Health and Safety Representative who is assigned to health and safety program-related functions within an office or long-term project location
- Project Managers who are responsible for managing a particular project or job.
- Site Safety Coordinators who provide health and safety oversight for a particular project site.
- Field personnel who are required to participate in appropriate health and safety programs and maintain their field-ready status.
- Each and every employee of Tetra Tech is responsible for upholding the standards established by the company.

An organization chart depicting the lines of authority is included as Figure 4-1.

5.0 SUBCONTRACTORS AND SUPPLIERS

Tetra Tech will not employ subcontractors in the performance of work covered by this APP.

6.0 TRAINING

Personnel who may be exposed to hazardous conditions and who will participate in site activities are required to meet the training requirements outlined in 29 CFR §1910.120, HAZWOPER. Furthermore, site personnel must satisfy any specialized training requirements that are presented in the AHAs for tasks to be completed on this project. Health and safety-related information will be communicated to employees through meetings, postings, written communications, and reporting of hazards.

6.1 NEW HIRE HEALTH AND SAFETY ORIENTATION

Tetra Tech requires all new employees to attend orientation training which includes a review and sign off on the Employee Handbook. This employee handbook is a general guide to various personnel policies including the Health and Safety Program and employee benefits of Tetra Tech. Each new hire is required to view a video that explains basic safety policies at Tetra Tech. Prior to working in the field on their own they are required to spend a minimum of three days actual field experience under the direct supervision of a trained experienced supervisor.

6.2 MANDATORY TRAINING AND CERTIFICATIONS

Tetra Tech personnel qualification and training certification documentation will be obtained by the PM and included in Attachment I and maintained on-site. Mandatory training and certifications applicable to this project include the following:

- 40 hours of introductory hazardous waste site training prior to performing work at SWMU 3.
- 8 hours of refresher training within the past 12 months before being cleared for site work. (Field personnel who have had introductory training more than 12 months prior to site work must complete this training again).
- 8-hour supervisory training in accordance with 29 CFR 1910.120(e)(4) will be required for site personnel operating in a supervisory capacity.

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.

6.3 SITE-SPECIFIC SAFETY AND HEALTH TRAINING

The FOL/SSO will provide site-specific training to Tetra Tech employees who will perform work on this project. In addition, a brief meeting will be held at the beginning of each day to discuss operations planned for that day and to review the appropriate AHAs with the planned task participants. Based on field activities, a short meeting may also be held at the end of the day to discuss the operations completed and any problems encountered.

Prior to accessing active work areas of the sites or participating in any intrusive activities, site personnel and visitors will first be required to undergo a site-specific safety and health training session conducted by the FOL/SSO, which will include a review of the APP and signing of the Site-Specific Training Documentation form.

Before site activities begin, the Tetra Tech FOL/SSO will present a briefing for site personnel who will participate in on-site activities. The following topics will be addressed during the pre-work briefing:

- Names of the personnel listed in the organizational chart and designated alternates
- Site history
- Work tasks
- Hazardous chemicals that may be encountered
- Physical hazards that may be encountered
- PPE, including types of respiratory and hearing protection to be used for work tasks
- Mandatory training and certification requirements (e.g., HAZWOPER, first aid, etc.)
- Environmental surveillance (air monitoring) equipment use and maintenance
- Action levels and situations requiring an upgrade or downgrade of level of protection
- Site control measures including site communications and control zones
- Decontamination procedures
- Emergency communication signals and codes, including incident reporting procedures
- Environmental accident/emergency procedures
- Personnel exposure and accident emergency procedures
- Fire and explosion emergency procedures
- Emergency telephone numbers
- Emergency routes

Any other health and safety-related issues that may arise before site activities begin will be covered during the pre-work briefing.

6.4 HAZARD COMMUNICATION TRAINING

In accordance with the OSHA Hazard Communication Standard (29 CFR 1920.1200 and 29 CFR 1926.59), copies of MSDS/SDSs for hazardous chemical materials that are used during site operations or that may be present on site will be available on site from the SSHO. The SSHO will conduct hazard communication (HAZCOM) training in accordance with 29 CFR 1920.1200 and 29 CFR 1926.59, Engineer Manual (EM) 385-1-1 (current version), and the HAZCOM program. Training will include, but is not be limited to, the hazards or potential hazards associated with work activities, and any hazardous chemical materials brought to on the site.

6.5 FIRST AID AND CARDIO PULMONARY RESUSCITATION TRAINING

The FOL/SSO will identify those individuals who have current first aid and cardiopulmonary resuscitation (CPR) training. At a minimum two people including the SSHO will be current in CPR/first aid. The names of all CPR/first aid-qualified workers will be posted on the site bulletin board and will be added to this APP when the project starts.

6.6 BLOODBORNE PATHOGENS TRAINING

Individuals on site who have first aid and CPR certification and who may provide emergency medical treatment shall have completed training in accordance with the Tetra Tech Bloodborne Pathogens Program and OSHA Bloodborne Pathogen Standard, 29 CFR 1910.1030. The Hepatitis B Vaccine Declination (mandatory) (in the event of accidental needle stick or other exposure to blood during first aid, etc.) will be one of the topics covered in the site orientation training in accordance with 29 CFR 1910.1030.

6.7 TRAINING DOCUMENTATION

Attachment I (Site Specific Training Documentation) documents 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 identifies 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.

6.8 PERIODIC SAFETY AND HEALTH TRAINING

Tetra Tech supervisors and employees are required to maintain their training and certifications and participation in the medical surveillance program required for field work. This is accomplished throughout the year by attending classroom sessions, taking on-line instruction, participating in webinars, attending professional conferences and obtaining annual or bi-annual physical examinations. In addition to other corporate training Tetra Tech requires all employees to review and sign off on the Employee Handbook bi-annually which contains the Corporate Health and Safety Program.

6.9 EMERGENCY RESPONSE TRAINING

Tetra Tech personnel who are involved in emergency response activities are required to attend and maintain their certifications.

7.0 SAFETY AND HEALTH INSPECTIONS

It is Tetra Tech's internal policy that the job sites involving work for NAVFAC are subject to audits by corporate safety staff.

7.1 SPECIFIC ASSIGNMENT OF RESPONSIBILITY FOR A MINIMUM DAILY JOB SITE SAFETY AND HEALTH INSPECTION DURING PERIODS OF WORK ACTIVITY

The Tetra Tech FOL/SSO will conduct safety and health inspections during this field effort to ensure safe work areas and compliance with the APP.

7.1.1 Proof of Inspector's Training/Qualifications

See Section 4.224.

7.1.2 Inspection Frequency

Daily site safety inspections shall be conducted by the FOL/SSO

7.1.3 Documentation Procedures

The FOL/SSO will record any deficiencies in the Field Log Book that is maintained onsite for the site practices.

7.1.4 Deficiency Tracking System and Follow-up Procedures

The items noted during field audits will be communicated to the Tetra Tech HSM who maintains a corrective/preventive action database. Responsibility for resolving each item noted during these audits is assigned and tracked through resolution.

Results from field audits are also regularly communicated throughout Tetra Tech through training and electronic means as a method of continuous program improvement. The FOL/SSO will follow up on deficiencies to ensure that they are resolved.

7.1.5 External Inspections/Certifications

The Tetra Tech HSM or a designated representative may conduct an unannounced inspection during this project.

8.0 ACCIDENT REPORTING

When an incident occurs, the FOL/SSO will verbally notify the PM. If the incident is an injury requiring more than first aid or property damages exceeding \$2,000 the PM will immediately notify the RPM.

8.1 EXPOSURE DATA

If required by the RPM, the FOL/SSO will calculate exposure data on a monthly basis. Man-hours worked are obtained from hours charged to a project for payroll purposes.

8.2 ACCIDENT INVESTIGATIONS, REPORTS, AND LOGS

Accidents or incidents, as well as near-miss events, are to be reported within 24 hours by either completing the written event report form or using the Tetra Tech web-based incident reporting process. Within five working days, a complete investigation report must be submitted to the RPM.

Tetra Tech employees have been educated that prompt and accurate reporting of any incidents they encounter is one of their personal health and safety responsibilities. On this project, the FOL/SSO are responsible for assuring that the incidents and serious near miss events are reported via the Tetra Tech TOTAL incident reporting system. The HSM is responsible for assuring that the incidents and serious near-miss events are adequately investigated. The HSM is also responsible for collecting, tracking, and trending incident data (e.g., recordable cases, employee hours worked, etc.). Accidents involving near misses, injuries, or illnesses must be immediately reported to the PM and the HSM, and documented on the Tetra Tech Incident Report form provided at the end of this section.

Hazardous work conditions or unsafe work practices will be corrected in a timely manner, both in the field and in the office. Upon discovery of an unsafe condition at a field site, the degree of hazard must be assessed. Action may range from complete shutdown of the operation to phased correction.

The Tetra Tech employees working on this project have "Stop Work" authority in the event that a potentially serious action or condition is observed. Tetra Tech will shut down a project during which life threatening, severe environmental impact, or significant equipment or property damage conditions may exist. Employees shall follow specific information for emergency evacuation and PPE usage as described in this APP.

8.3 IMMEDIATE NOTIFICATION OF MAJOR INCIDENTS

Any occupational incidents meeting the definitions presented below that occur on this project will be immediately reported to the RPM as soon as possible, but not later than 24 hours from the time of the event. Incidents that must be reported include those that result in any of the following:

- Fatalities
- Permanent total disability
- Permanent partial disability
- Hospitalization of 3 or more people resulting from a single occurrence
- Property damage of \$200,000 or more

With consultation with the PHSO, the FOL will coordinate with the Tetra Tech PM in making any such notifications to the RPM.

8.4 INCIDENT REPORTING PROCEDURES

Following the prescribed incident reporting procedure is necessary for documenting the information obtained at the time of the incident.

8.4.1 TOTAL Incident Reporting System

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

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

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

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

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

Incidents, including near-miss incidents, involving Tetra Tech personnel shall be reported and investigated.

TOTAL is an intuitive system that guides users through the necessary steps to report an incident within 24 hours of its occurrence. TOTAL is a tool to better track incidents, analyze root causes, implement corrective action plans, and share lessons learned.

8.4.2 How to Access TOTAL to Report an Incident

On the “My Tetrattech” web site, TOTAL can be found under the “Health and Safety” tab, by clicking on “Incident Reporting.” Select “Report an Incident (TOTAL)” then, near the bottom of the screen, click on “Launch TOTAL Application.” This connects the user directly to TOTAL. Next, click on “Enter new incident”, and follow the steps as presented. The system was designed to be “fail safe” in that the user will not be able to skip any required information. TOTAL can also be accessed directly from the internet using the following web address: <http://totalhs.tetrattech.com/>.

Note: When accessing the system from 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 dependent upon outside factors such as connection speed, signal strength, etc. Enter the system using your network user name and password. The user name should be in the following format - TT\firstname.lastname.

If any Tetra Tech personnel are injured or develop an illness as a result of working onsite, and they are at a remote location where they cannot establish reliable internet connection with TOTAL to report an incident, then the employee will complete a hard-copy Tetra Tech “Incident Report Form.” Tetra Tech’s Incident Reporting and Investigation Program requires that employees report all incidents as soon as possible, but within 24 hours. An initial report must be completed on TOTAL within that time frame.

Figure 8-1 the forms found online in the TOTAL system. It can be used as a reference during the incident information gathering phase and prior to completing the form on line.

9.0 PLANS (PROGRAMS, PROCEDURES) REQUIRED BY THE SAFETY MANUAL

The follow sections further describe the plans and/or identify the location of the information.

9.1 LAYOUT PLANS

This project will not erect any temporary facilities. The primary activities of the project will occur outside on or near the site. The sampling supplies and recordkeeping activity will supported using site vehicles. The layout of the Site is identified in the Facility Location Map included as Figure 9-1.

9.2 EMERGENCY RESPONSE PLANS

The emergency response agencies listed in the APP are capable of providing the most effective response, and as such, are 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 RPM and the POC will be notified if these response agencies are contacted.

9.2.1 Procedures and Tests

In the event of an emergency situation such as fire or explosion, the FOL/SSO will activate an air or vehicle horn for approximately 15 seconds, indicating the initiation of evacuation procedures. The personnel in both restricted and non-restricted areas will evacuate and assemble near the support zone, or other safe area, as identified by the FOL/SSO.

Prior to start of work at any project site, the FOL/SSO will identify and mark the location of an evacuation assembly area for that project site. The location should be upwind of the site as determined by the wind direction. For efficient and safe site evacuation and assessment of the emergency situation, the FOL/SSO will have the authority to initiate proper action if outside services are required. Under no circumstances will incoming personnel or visitors be allowed to proceed into the area once the emergency signal has been given.

The FOL/SSO must establish that access for emergency equipment is provided and that the equipment that may cause combustion has been shut down once the alarm has been sounded. As soon as possible, and while the safety of the personnel is being confirmed, emergency agency notification will commence. The FOL/SSO will brief site personnel each day as to the location of the evacuation assembly area. Prior to the start of activities at the site, the FOL/SSO will establish safe egress routes from the site to the

evacuation assembly area. The FOL/SSO will prepare a drawing, or map, that diagrams these safe egress routes.

9.2.2 Spill Plans

It is not anticipated that bulk quantities of potentially hazardous materials (greater than 55-gallons) may be handled during the site activities. However, if Tetra Tech field crewmembers discover a spill or leak they will employ the following measures.

- Take immediate actions to stop the leak or to control the spill.
- Notify the FOL/SSO immediately.
- Avoid contacting container contents.
- The potential hazards will be evaluated to determine the proper personal protection levels, methods, and equipment necessary for the cleanup.
- Spread the absorbent material in the area of the spill covering completely.
- If necessary, the spill area will be evacuated, isolated, and secured.

It is not anticipated that a spill will occur of such magnitude that the field crew cannot handle it. Should this occur, however, the FOL/SSO will notify appropriate emergency response agencies and the POC immediately.

9.2.3 Firefighting Plan

Workers will only fight incipient stage fires using fire extinguisher available at the work site. Fire extinguishers are intended to fight only fires that have recently occurred and can be reasonably extinguished immediately. Workers will only attempt to fight a fire that can be reasonably extinguished within 30 seconds to 1 minute.

9.2.4 Posting of Emergency Telephone Numbers

The list of emergency telephone numbers will be maintained at the telephone communications points in the site vehicle. See Table 9-1.

**TABLE 9-1
EMERGENCY CONTACTS
CRANE, INDIANA**

CONTACT	TELEPHONE
Base Emergency Numbers* (Fire Department, Base Security, Ambulance) <ul style="list-style-type: none"> • If dialing from an on-base phone • If dialing from cell or off-base phone 	9-1-1 (812) 854-1333
Base Environmental Office	(812) 854-3114
Bedford Ambulance	(812) 279-6545
Bloomington Hospital (Bloomington, Indiana)	(812) 336-9515
Bedford Medical Center (Bedford, Indiana)	(812) 275-1200
Indiana Utility One Call	811
Poison Control Center	(800) 222-1222
National Response Center	(800) 424-8802
Navy RPM, Howard Hickey	(847) 688-2600 x 243
Base Contact, Thomas Brent	(812) 854-6160
Tetra Tech Project Manager, Karen Lyons	(412) 921-8893
FOL/SSO,	
Tetra Tech Office, Pittsburgh	(412) 921-7090
CLEAN HSM, Matthew M. Soltis	(412) 921- 8912-office (412) 260-6681-cell
PSHO, James K. Laffey	(412) 921-8904-office (412) 370-6668-cell

***NOTE: Base Emergency numbers: 911 works from an on-base (854-prefix) phone. Otherwise, dial 812-854-1333. It's important to note if you dial 911 from a cell phone, you will get an off-center emergency desk, which will delay the arrival of any on-base emergency services.**

9.2.5 Man Overboard/Abandon Ship

Not applicable.

9.2.6 Medical Support (Onsite/Offsite)

Tetra Tech will ensure that a minimum of two people have current certifications in CPR/AED, first aid, and bloodborne pathogens. Other than rendering basic CPR and first aid, these employees are not expected to perform emergency medical duties. However, they are authorized to perform emergency rescue or other duties up to the level of their training. Emergency medical assistance will be acquired.

Life-threatening medical emergencies will be handled by the calling 9-1-1. Others will be referred to the local hospitals. Maps to these facilities are provided in Figure 9-2.

Tetra Tech personnel are instructed to perform a drive-by of the nearest hospital prior to commencing site activities to ensure that it is accessible and available and that the most efficient routes (primary and alternate) are well mapped. If emergency medical assistance is not required, Tetra Tech personnel may contact WorkCare (occupational medicine provider) as detailed in the APP.

9.2.6.1 WorkCare Incident Intervention Program

The WorkCare Incident Intervention program is an injury and illness management tool that provides 24/7 immediate telephone access for Tetra Tech employees to access a WorkCare occupational medical provider. Their clinical staff of nurses and doctors will intervene on behalf of the Tetra Tech employee after a workplace injury and illness. The goal of the program is to help make sure the employee receives proper care with effective outcomes.

When this service is used within the first hour of an incident, known as the “golden hour,” the clinical team has the ability to guide the proper course of action so that medical evaluation and treatment are rendered appropriately. This early intervention service provides the right care, at the right time, in the proper setting.

At the time of a workplace injury or illness, the FOL/SSO calls the WorkCare toll free telephone number – (888) 449-7787. The FOL/SSO then provides information on the type of incident, possible cause, and the scope of the situation.

The WorkCare clinician will provide:

- An evaluation of the incident
- Direction on the appropriate course of action
- Consults with the employees treating physician to design a quality care treatment plan

9.2.6.2 *Medical Data Sheet*

Each field team member, including visitors, entering the exclusion zone(s) shall be required to complete and submit a copy of the Medical Data Sheet (see Figure 9-3). This shall be provided to the SSSHO, prior to participating in site activities. The purpose of this document is to provide site personnel and emergency responders with additional information that may be necessary in order to administer medical attention. Any pertinent information regarding allergies to medications or other special conditions should be documented. 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.

9.3 SUBSTANCE ABUSE POLICY

The Tetra Tech Substance Abuse policy prohibits the unlawful manufacture, distribution, dispensation, possession, or use of alcohol, illegal drugs or intoxicants on any Company-owned or leased space, client facility, or work site. Use of these substances, regardless of whether it is determined that such use occurred during the work hours or at a company work location, or whether such use actually affected an employee's ability to perform his or her job, is a violation of this policy.

In order to enforce this policy, the Company may investigate potential violations and require personnel to undergo drug/alcohol screening, including urinalysis, blood tests or other appropriate tests. The Company may also conduct searches of all areas of the Company premises, including, but not limited to work areas, rest rooms, break areas, personal articles, employee's clothes, desks, work stations, lockers, and personal and Company-owned vehicles.

Violation of this policy or any of its provisions may result in disciplinary action up to and including termination of employment. Employees may be subject to discipline up to and including termination for refusing to cooperate with searches or investigations, refusing to submit to screening, or failing to execute consent forms when required by supervisors.

Employees who are convicted of any criminal drug statute for a violation occurring in the workplace are required to notify their Human Resources Representative no later than five days after the conviction. It shall also be the responsibility of each employee who observes or has knowledge of another employee in

a condition which impairs the employee to perform his or her job duties or who presents a hazard to the safety and welfare of others to promptly report that fact to his or her immediate supervisor.

9.4 SITE SANITATION PLAN

Housekeeping is an important issue at each work site. The work sites shall be kept as clean as possible during task operation, taking into consideration the nature of the work. The FOL/SSO is responsible to ensure that housekeeping occurs on a continuous basis.

Drinking water is provided for each site worker. An adequate supply of cool potable water is provided at the sites for both drinking and personal cleansing.

Public accessible toilets will be utilized while on site. The work conducted under this task order will be by mobile crews at normally unattended locations. Transportation is readily available to nearby toilet and/or washing facilities.

Showers, changing rooms, clothes drying facilities and food service are available near the site. Heavy duty plastic trash bags will be used to collect waste. Waste receptacles will be provided on site as needed.

9.5 ACCESS AND HAUL ROAD PLAN

Not applicable.

9.6 RESPIRATORY PROTECTION PLAN

Not applicable.

9.7 HEALTH HAZARD CONTROL PLAN

The primary health hazards associated with this project are physical, chemical and biological hazards associated with sample collecting. The APP describes mitigation measures to reduce these hazards. Detailed task-specific hazards and controls are provided in the AHAs in Section 10.0

9.8 HAZARD COMMUNICATION PROGRAM

Site operations will be compliant with the provisions of the OSHA Hazard Communication 29 CFR 1910.1200(f) Standard. OSHA recently revised its Hazard Communication Standard to align with the United Nations' Global Harmonized System of Classification and Labeling of Chemicals. Two significant

changes contained in the revised standard require the use of new labeling elements and a standardized format for Safety Data Sheets (SDS) formerly known as MSDSs. To help companies comply with the revised standard OSHA is phasing in the specific requirements over several years ending June 1, 2016. Site personnel are aware of these changes and will process this information accordingly.

9.8.1 MSDS/SDS

Tetra Tech will provide MSDS/SDSs for chemicals brought onsite. The contents of these documents will be reviewed by the FOL/SSO with the user(s) of the chemical substances prior to any actual use or application of the substances onsite. The MSDS/SDSs will then be maintained in a central location (i.e., temporary office) and will be available for anyone to review upon request.

9.8.2 Chemical Inventory

The FOL/SSO is responsible to develop and maintain an accurate chemical inventory list for the chemicals that will be used and stored at that workplace.

9.8.3 Container Labeling

When a chemical is brought onsite, the FOL/SSO is responsible for its receipt will verify that the container is properly labeled with the following information:

- Name of the chemical substance
- Appropriate hazard warning
- Name and address of the chemical manufacturer

New OSHA labeling regulations, coming into effect in 2015, will require the following information on labels:

- Name, Address and Telephone Number
- Product Identifier
- Signal Word
- Hazard Statement
- Precautionary Statement(s)
- Pictograms

While these regulations are not currently mandatory some companies have already started to implement these changes.

9.8.4 Training

Any new chemicals brought onsite that may present new hazards may require additional training. The FOL/SSO will ensure that the appropriate training is conducted for the site personnel required to use the chemical.

9.9 PROCESS SAFETY MANAGEMENT PLAN

Not applicable

9.10 LEAD ABATEMENT PLAN

Not applicable

9.11 ASBESTOS ABATEMENT PLAN

Not applicable

9.12 RADIATION SAFETY PROGRAM

Not applicable

9.13 ABRASIVE BLASTING

Not applicable

9.14 HEAT/COLD STRESS MONITORING PLAN

It is necessary for the field team to be aware of the signs and symptoms and the measures appropriate to prevent heat and cold stress. While it is unlikely, if such conditions are encountered use the following information on heat and cold stress recognition, prevention and control.

Ambient temperature extremes (hot or cold working environments) may occur during performance of hazardous waste work depending on the project schedule. Work performed when ambient air temperatures are below 50 degrees Fahrenheit (°F) may result in varying levels of cold stress (frost nip, frost bite, and/or hypothermia) depending on environmental factors such as temperature, wind speed, and humidity; physiological factors such as metabolic rate and moisture content of the skin; and other factors such as work load and the protective clothing being worn. Work performed when ambient temperatures

exceed 70°F may result in varying levels of heat stress (heat rash, heat cramps, heat exhaustion, and/or heat stroke) depending on factors similar to those presented above for cold stress.

In either case, these conditions can be debilitating and, when extreme, they can be fatal. An understanding of the importance in preventing heat/cold stress, coupled with the worker's awareness of the signs and symptoms of overexposure, can significantly reduce the potential for adverse health effects. If this hazard is present during site operations, each worker will be provided with information necessary to protect themselves, and site management will be instructed to permit frequent breaks in mild temperature rest areas having hot/cold fluids available for consumption. When site personnel are required to wear semi-permeable (Saranex, Tyvek) or impermeable protective clothing to perform their assigned tasks and ambient temperatures are 70°F or higher, biological monitoring may be performed and data compared to the most recent recommendations of the American Conference of Governmental Industrial Hygienists (ACGIH).

9.14.1 Heat Related Disorders

There are four heat related disorders to monitor while performing work onsite.

9.14.1.1 Heat Rash

Also known as prickly heat, this condition affects the skin. It occurs in situations where the skin remains wet most of the time. The sweat ducts become plugged and a skin rash soon appears.

9.14.1.1.1 Signs and Symptoms

- Skin rash will appear on affected areas of the body.
- Tingling or prickling sensation will be felt on the affected areas.

9.14.1.2 Heat Cramps

Heat cramps are muscle pains, usually in the lower extremities, the abdomen, or both, that occur after profuse sweating with accompanying salt depletion. Heat cramps most often afflict people in good physical condition, who overwork in conditions of high temperature and humidity. Untreated, heat cramps may progress to heat exhaustion.

9.14.1.2.1 Signs and Symptoms

- Cramps in the extremities and abdomen that begin suddenly during vigorous activity. Heat cramps can be mild with only slight abdominal cramping and tingling in the extremities, but more commonly present intense and incapacitating pain in the abdomen and extremities.
- Respiration rate will increase, decreasing after the pain subsides.
- Pulse rate will increase.
- Skin will be pale and moist.
- Body temperature will be normal.
- Generalized weakness will be noted as the pain subsides.
- Loss of consciousness and airway maintenance are seldom problems with this condition.

Treatment for heat cramps is aimed at eliminating the exposure and restoring the loss of salt and water.

9.14.1.3 Heat Exhaustion

Heat exhaustion is a more severe response to salt and water loss, as well as an initial disturbance in the body's heat-regulations system. Like heat cramps, heat exhaustion tends to occur in people working in hot environments. Heat exhaustion may progress to heat stroke. Treatment for heat exhaustion is similar in principle to that for heat cramps.

9.14.1.3.1 Signs and Symptoms

- Heat exhaustion may be accompanied present by a headache, fatigue, dizziness, or nausea with occasional abdominal cramping.
- More severe cases of heat exhaustion may result in partial or complete temporary loss of respiration and circulation due to cerebral ischemia.
- Sweating will be profuse.
- Pulse rate will be rapid and weak.
- Respiration rate will be rapid and shallow.
- The skin will be pale and clammy.
- The body temperature will be normal or decreased.
- The person could be irritable and restless.

9.14.1.4 Heat Stroke

Heat stroke is caused by a severe disturbance in the body's heat-regulating system and is a profound emergency: The mortality rate ranges from 25 to 50 percent. It can also occur from having too much

exposure to the sun or prolonged confinement in a hot atmosphere. Heat stroke comes on suddenly. As the sweating mechanism fails, the body temperature begins to rise precipitously, reaching 106°F (41°C) or higher within 10 to 15 minutes. If the situation is not corrected rapidly, the body cells -- especially the very vulnerable cells in the brain -- are literally cooked, and the central nervous system is irreversibly damaged. The treatment for heat stroke is aimed at maintaining vital functions and causing as rapid a decrease of body temperature as possible.

9.14.1.4.1 Signs and Symptoms

- The person's pulse will be strong and bounding.
- The skin will be hot, dry, and flushed.
- The worker may experience headache, dizziness, and dryness of mouth
- Seizures and coma can occur.
- Loss of consciousness and airway maintenance problems can occur.

9.14.1.5 *Controlling Heat Stress*

The following control measures are only guidelines for heat related emergencies. Actual training in emergency medical care or basic first aid is recommended. Employees will monitor one another for signs of heat stress. If indications of heat stress occur, the following corrective measures will be performed:

- Inform affected workers of the signs and symptoms of heat stress and encourage co-worker observations.
- Schedule tasks that are physically-demanding in early morning and late afternoon timeframes when heavy loads would be less of an issue.
- Notify the FOL/SSO who may perform biological monitoring to determine the extent of the heat related condition.
- The FOL/SSO may alter the work regime that will provide adequate rest periods for cooling down. This may require additional shifts of workers.
- The FOL/SSO may also recommend cooling devices such as vortex tubes or cooling vests be worn beneath protective garments.

- When conditions where heat related disorders may be experienced, the FOL/SSO through site-specific training and safety briefing will inform site personnel of the importance of adequate rest, acclimation, and proper diet in the prevention of heat stress.
- Provide adequate liquids to replace lost body fluids.
- Personnel must replace water and salt lost from sweating.
- Personnel must be encouraged to drink more than the amount required to satisfy thirst.
- Thirst satisfaction is not an accurate indicator of adequate salt and fluid replacement.
- Approximately 1 cup of cool water every 20 minutes is recommended.
- Replacement fluids can be commercial mixes such as Gatorade®.
- Move affected persons into a shaded cool rest area (below 77° F is best).
- Personnel shall remove impermeable protective garments during rest periods.
- Personnel shall not be assigned other tasks during rest periods.
- One of the following biological monitoring procedures may be utilized by the FOL/SSO to monitor heat stress concerns.
- Heart rate (HR) shall be measured by the pulse for 30 seconds as early as possible in the resting period. The HR at the beginning of the rest period should not exceed 110 beats/minute.
- If the HR is higher, the next work period should be shortened by 10 minutes (or 33%), while the length of rest period stays the same.
- If the pulse rate is 100 beats/minute at the beginning of the next rest period, the following work cycle should be shortened by 33%.
- The length of the initial work period will be determined by using the table below.

TABLE 9-2
PERMISSIBLE HEAT EXPOSURE THRESHOLD LIMIT VALUES

Work-Rest Regimen	Work Load		
	Light	Moderate	Heavy
Continuous	80.0 F	80.0 F	77.0 F
75% Work - 25% Rest, Each Hour	87.0 F	82.4 F	78.6 F
50% Work - 50% Rest, Each Hour	88.5 F	85.0 F	82.2 F
25% Work - 75% Rest, Each Hour	90.0 F	88.0 F	86.0 F

Body temperature shall be measured orally with a digital thermometer with disposable probe covers or an aural/temporal temperature sensor as early as possible in the resting period. Oral temperature (OT) at the beginning of the rest period should not exceed 99°F. If it does, the next work period should be shortened by 10 minutes (or 33%), while the length of the rest period stays the same. However, if the oral temperature exceeds 99.7°F at the beginning of the next rest period, the following work cycle shall be further shortened by 33%. OT should be measured at the end of the rest period to make sure that it has dropped below 99°F. At no time shall work begin with the oral temperature above 99°F.

NOTE: External temperatures in excess of those stated above shall be regarded as inclement weather.

9.14.1.5.1 Temperature Extremes – Heat Stress Indication

Temperature extremes are considered inclement weather. Steps should be taken to the extent possible protect site personnel from the effects of heat stress and the sun. Control measures include:

- Watch for signs of heat stress/exhaustion, see Table 9-3.
- Provide fluid replacement.
- Provide adequate number of breaks within a cooler environment.

Care should be exercised when working outdoors due to harmful effects of the sun. To reduce the potential for sunburn and melanoma use the following measures:

- Wear a hat that shades the face, neck, and ears.
- Apply sunscreen with a SPF of 15 or higher liberally on any exposed skin at least 15 minutes before going outside, then at least every two hours, more if you are sweating a lot.

- Plan/provide suitable equipment to offer shade to avoid the midday sun since the sun's ultraviolet rays are most intense between 10 AM and 4 PM and can damage your skin even on hazy days. Portable canopies over the sample station are an example of this.
- Wear wrap-around sunglasses to protect the eyes and delicate skin around them.

TABLE 9-3
HEAT STRAIN SYMPTOMS

Stop work if any worker demonstrates any of the following:

Heart Rate	Sustained (several minutes) heart rate minus worker's age > than 180 beats per minute (bpm) measured at any time.
Body Core Temperature	> 101.3°F (38.5° C)
Recovery Heart Rate	> 110 bpm (measured 1 minute after peak work effort)
Other symptoms	Sudden and sever fatigue, nausea, dizziness, or headache

Individuals may be at greater risk of heat stress when:

- Profuse sweating is sustained over hours
- Weight loss over a shift is > 1.5% of beginning body weight
- 24-hour urinary sodium excretion is less than 50 nmoles

9.14.1.5.2 First Aid for Heat Stroke

Take the following steps to treat a worker with heat stroke:

- Call NSA Crane Emergency Dispatch Center and notify FOL/SSO.
- Move the affected individual to a cool shaded area.
- Cool the worker using methods such as:
 - Soaking their clothes with water.
 - Spraying, sponging, or showering them with water.
 - Fanning their body.

9.14.1.5.3 First Aid for Heat Exhaustion

Treat victim suffering from heat exhaustion with the following:

- Have them rest in a cool, shaded or air-conditioned area.
- Have them drink plenty of water or other cool, nonalcoholic beverages.

- Have them take a cool shower, bath, or sponge bath.

9.14.1.5.4 First Aid for Heat Cramps

Individuals with heat cramps should:

- Stop all activity, and sit in a cool place.
- Drink clear water, juice or a sports beverage.
- Do not return to strenuous work for a few hours after the cramps subside because further exertion may lead to heat exhaustion or heat stroke.
- Seek medical attention if any of the following apply:
 - The person has heart problems.
 - The person is on a low-sodium diet.
 - The cramps do not subside within one hour.

9.14.1.5.5 First Aid for Heat Rash

Workers experiencing heat rash should:

- Try to work in a cooler, less humid environment when possible.
- Keep the affected area dry.
- Dusting powder may be used to increase comfort.

9.14.2 Cold Stress Related Disorders

Just as heat can present a problem for on-site personnel during certain activities, so can cold temperatures. Just as the heat related disorders are magnified by environmental conditions and the tasks to be completed, so are the cold related disorders. As above, the focus is on recognizing conditions contributing to cold related disorders and selecting the most appropriate control measure.

The ACGIH cold stress Threshold Limit Values (TLVs) are recommended to protect workers from the severest effects of cold stress (hypothermia) and cold injury and to describe exposures to cold working conditions under which it is believed that nearly all workers can be repeatedly exposed without adverse health effects. The TLV objective is to prevent the deep body temperature from falling below 36°degrees centigrade (°C) or (96.8°F) and to prevent cold injury to body extremities (deep body temperature is the core temperature of the body determined by conventional methods for rectal temperature measurements). For a single, occasional exposure to a cold environment, a drop in core temperature to

no lower than 35°C (95°F) should be permitted. In addition to provisions for total body protection, the TLV objective is to protect all parts of the body with emphasis on hands, feet, and head from cold injury.

Fatal exposures to cold among workers have almost always resulted from accidental exposures involving failure to escape from low environmental air temperatures or from immersion in low temperature water. The single most important aspect of life-threatening hypothermia is the fall in the deep core temperature of the body. The clinical presentations of victims of hypothermia are shown in Table 9-4. Workers should be protected from exposure to cold so that the deep core temperature does not fall below 36°C (96.8°F); lower body temperatures will very likely result in reduced mental alertness, reduction in rational decision making, or loss of consciousness with the threat of fatal consequences.

TABLE 9-4
PROGRESSIVE CLINICAL PRESENTATIONS OF HYPOTHERMIA*

Core Temperature		Clinical Signs
°C	°F	
37.6	99.6	"Normal" rectal temperature
37	98.6	"Normal" oral temperature
36	96.8	Metabolic rate increases in an attempt to compensate for heat loss
35	95.0	Maximum shivering
34	93.2	Victim conscious and responsive, with normal blood pressure
33	91.4	Severe hypothermia below this temperature
32	89.6	Consciousness clouded; blood pressure becomes difficult to obtain;
31	87.8	pupils dilated but react to light; shivering ceases
30	86.0	Progressive loss of consciousness; muscular rigidity increases; pulse
29	84.2	and blood pressure difficult to obtain; respiratory rate decreases
28	82.4	Ventricular fibrillation possible with myocardial irritability
27	80.6	Voluntary motion ceases; pupils nonreactive to light; deep tendon and
26	78.8	superficial reflexes absent
26	78.8	Victim seldom conscious
25	77.0	Ventricular fibrillation may occur spontaneously
24	75.2	Pulmonary edema
22	71.6	Maximum risk of ventricular fibrillation
21	69.8	
20	68.0	Cardiac standstill
18	64.4	Lowest accidental hypothermia victim to recover
17	62.6	Isoelectric electroencephalogram
9	48.2	Lowest artificially cooled hypothermia patient to recover

* Presentations approximately related to core temperature. Reprinted from the American Family Physician, published by the American Academy of Family Physicians.

9.14.2.1 Signs and Symptoms

Pain in the extremities may be the first early warning of danger to cold stress. During exposure to cold, maximum severe shivering occurs when the body temperature has fallen to 3°C (95°F). This must be

taken as a sign of danger and exposure to cold should be immediately terminated when severe shivering becomes evident. Useful physical or mental work is limited when severe shivering occurs.

9.14.2.2 Control Measures

Since prolonged exposure to cold air or to immersion in cold water, at temperatures well above freezing can lead to dangerous hypothermia, whole body protection must be provided.

- Adequate insulating dry clothing to maintain core temperatures above 36°C (96.8°F) must be provided to workers if work is performed in air temperatures below 4°C (40°F).
- Wind chill cooling rate and the cooling power of air are critical factors. [Wind chill cooling rate is defined as heat loss from a body expressed in watts per meter squared which is a function of the air temperature and wind velocity upon the exposed body.]
- The higher the wind speed and the lower the temperature in the work area, the greater the insulation value of the protective clothing required.
- An equivalent chill temperature chart relating the actual dry bulb air temperature and the wind velocity is presented in Table 9-5.
- The equivalent chill temperature should be used when estimating the combined cooling effect of wind and low air temperatures on exposed skin or when determining clothing insulation requirements to maintain the deep body core temperature.
- Unless there are unusual or extenuating circumstances, cold injury to other than hands, feet, and head is not likely to occur without the development of the initial signs of hypothermia.
- Older workers or workers with circulatory problems require special precautionary protection against cold injury.
 - The use of extra insulating clothing and/or a reduction in the duration of the exposure period are among the special precautions which should be considered.
 - The precautionary actions to be taken will depend upon the physical condition of the worker and should be determined with the advice of a physician with knowledge of the cold stress factors and the medical condition of the worker.

TABLE 9-5
COOLING POWER OF WIND ON EXPOSED FLESH EXPRESSED AS EQUIVALENT TEMPERATURE
(under calm conditions)*

Estimated Wind Speed (in mph)	Actual Temperature Reading (°F)											
	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
Calm	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
5	48	37	27	16	6	-5	-15	-26	-36	-47	-57	-68
10	40	28	16	4	-9	-24	-33	-46	-58	-70	-83	-95
15	36	22	9	-5	-18	-32	-45	-58	-72	-85	-99	-112
20	32	18	4	-10	-25	-39	-53	-67	-82	-96	-110	-121
25	30	16	0	-15	-29	-44	-59	-74	-88	-104	-118	-133
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109	-125	-140
35	27	11	-4	-20	-35	-51	-67	-82	-98	-113	-129	-145
40	26	10	-6	-21	-37	-53	-69	-85	-100	-116	-132	-148
(Wind speeds greater than 40 mph have little additional effect)		LITTLE DANGER In < hr with dry skin. Maximum danger of false sense of security					INCREASING DANGER Danger from freezing of exposed flesh within one minute.				GREAT DANGER Flesh may freeze within 30 seconds.	

Trench foot and immersion foot may occur at any point on this chart.

- Acclimatization – With exposure the body does undergo changes that will permit it to adjust to the cold weather better.
- Dehydration – Water and salt loss magnifies conditions associated with hypothermia. Warm, sweet nonalcoholic fluids should be employed for fluid replacement. Soup, non-caffeinated drinks including decaffeinated teas, coffees, etc. are suitable for this purpose.
- Diet – A balanced diet can provide the body with the necessary nutrients to aid in combating cold stress. Restrictive diets avoiding salts, carbohydrates, etc. may rob you of certain elements that you need. Caffeine and alcoholic drinks may increase the effects of a cold environment through the loss of water and salts.
- Engineering Controls such as wind shields/barriers may be used to control the potential effects of cold stress.
- Administrative controls such as worker rotation; work/warm regimens; required fluid intake; scheduling the work for warmer weather; assigning more workers to the task to complete it quicker.
- Overall physical condition should always be considered when combating cold stress.
 - Older persons and those on certain medications (blood pressure control) are vulnerable to cold environment and cold stress disorders.
- Environmental monitoring results will tell you if the conditions are such that cold related disorders can occur.
 - Biological monitoring will provide real time information as to the progression of the cold related disorders within your field crew.

9.14.2.3 Monitoring

- Core temperature
 - Ensure that it does not drop below 96.8°F
- Weight Loss
 - Monitoring weight loss may be indicative of water and salt loss through dehydration.
 - >2% changes in body weight are indicative of water loss.
- Visual observation of signs and symptoms of overexposure.

**TABLE 9-6
THRESHOLD LIMIT VALUES WORK/WARM-UP SCHEDULE FOR FOUR-HOUR SHIFT***

Air Temperature - Sunny Sky		No Noticeable Wind		5 mph Wind		10 mph Wind		15 mph Wind		20 mph Wind	
°C (approx)	°F (approx)	Max. Work Period	No. of Breaks								
-26° to -28°	-15° to -19°	(Norm Breaks)	1	(Norm Breaks)	1	75 min	2	75 min	2	55 min	3
-29° to -31°	-20° to -24°	(Norm Breaks)	1		2	75 min	2	55 min	3	40 min	4
-32° to -34°	-25° to -29°	75 min	2	55 min	3	40 min	4	40 min	4	30 min	5
-35° to -37°	-30° to -34°	55 min	3	40 min	2	30 min	5	30 min	5	Non-emergency work should cease	
-38° to -39°	-35° to -39°	40 min	4	30 min	1	Non-emergency work should cease		Non-emergency work should cease			
-40° to -42°	-40° to -44°	30 min	5								
-43° & below	-45° & below	Non-emergency work should cease		Non-emergency work should cease							

NOTES:

- Schedule applies to moderate to heavy work activity with warm-up breaks of 10 minutes in a warm location. For Light-to-Moderate Work (limited physical movement): apply the schedule one step lower. For example, at 35°C (-30°F) with no noticeable wind (Step 4), a worker at a job with little physical movement should have a maximum work period of 40 minutes with 4 breaks in a 4-hour period (Step 5).
- The following is suggested as a guide for estimating wind velocity if accurate information is not available: 5 mph: light flag moves; 10 mph: light flag fully extended; 15 mph: raises newspaper sheet; 20 mph: blowing and drifting snow.
- If only the wind chill cooling rate is available, a rough rule of thumb for applying it rather than the temperature and wind velocity factors given above would be: (1) special warm-up breaks should be initiated at a wind chill cooling rate of about 1750 W/M²; (2) all non-emergency work should have ceased at or before a wind chill of 2250 W/m². In general, the warm-up schedule provided above slightly under-compensates for the wind at the warmer temperatures, assuming acclimatization and clothing appropriate for winter work. On the other hand, the chart slightly over-compensates for the actual temperatures in the colder ranges, since windy conditions rarely prevail at extremely low temperatures.
- TLVs apply only for workers in dry clothing.

* Adapted from Occupational Health & Safety Division, Saskatchewan Department of Labor.

9.14.2.4 Special Conditions - Evaluation and Control

For exposed skin, continuous exposure should not be permitted when the air speed and temperature results in an equivalent chill temperature of -32°C (-25.6°F). Superficial or deep local tissue freezing will occur only at temperatures below -1°C (30.2°F) regardless of wind speed.

At air temperatures of 2°C (35.6°F) or less, it is imperative that workers who become immersed in water or whose clothing becomes wet be immediately provided a change of clothing and be treated for hypothermia.

TLVs recommended for properly clothed workers for periods of work at temperatures below freezing are shown in Table 9-6.

Special protection of the hands is required to maintain manual dexterity for the prevention of accidents:

- If fine work is to be performed with bare hands for more than 10-20 minutes in an environment below 16°C (60.8°F), special provisions should be established for keeping the workers' hands warm.
- For this purpose, warm air jets, radiant heaters (fuel burner or electric radiator), or contact warm plates may be utilized.

Metal handles of tools and control bars should be covered by thermal insulating material at temperatures below -1°C (30.2°F).

- If the air temperature falls below 16°C (60.8°F) for sedentary, 4°C (39.2°F) for light, -7°C (19.4°F) for moderate work and fine manual dexterity is not required, then gloves should be used by the workers.
- To prevent contact frostbite, the workers should wear anti-contact gloves.
- When cold surfaces below -7°C (19.4°F) are within reach, a warning should be given to each worker by the supervisor to prevent inadvertent contact by bare skin.
- If the air temperature is -17.5°C (0°F) or less, the hands should be protected by mittens.
- Machine controls and tools for use in cold conditions should be designed so that they can be handled without removing the mittens.

- Provisions for additional total body protection are required if work is performed in an environment at or below 4°C (39.2°F). The workers should wear cold protective clothing appropriate for the level of cold and physical activity:
- If the air velocity at the job site is increased by wind, draft, or artificial ventilating equipment, the cooling effect of the wind should be reduced by shielding the work area or by wearing an easily removable windbreak garment.
- If only light work is involved and if the clothing on the worker may become wet on the job site, the outer layer of the clothing in use may be of a type impermeable to water.
- With more severe work under such conditions, the outer layer should be water repellent, and the outerwear should be changed as it becomes wetted.
- The outer garments should include provisions for easy ventilation in order to prevent wetting of inner layers of sweat.
- If work is done at normal temperatures or in a hot environment before entering the cold area, the employee should make sure that clothing is not wet as a consequence of sweating.
- If clothing is wet, the employee should change into dry clothes before entering the cold area.
- The workers should change socks and any removable felt insoles at regular daily intervals or use vapor barrier boots.
- The optimal frequency of change should be determined empirically and will vary individually and according to the type of shoe worn and how much the individual's feet sweat.
- If exposed areas of the body cannot be protected sufficiently to prevent sensation of excessive cold or frostbite, protective items should be supplied in auxiliary heated versions.
- If the available clothing does not give adequate protection to prevent hypothermia or frostbite, work should be modified or suspended until adequate clothing is made available or until weather conditions improve.

9.14.2.5 Work - Warming Regimen

If work is performed continuously in the cold at an equivalent chill temperature (ECT) or below -7°C (19.4°F), heated warming shelters (tents, cabins, rest rooms, etc.) should be made available nearby. The workers should be encouraged to use these shelters at regular intervals, the frequency depending on the severity of the environmental exposure. The onset of heavy shivering, frostnip, the feeling of excessive fatigue, drowsiness, irritability, or euphoria are indications for immediate return to the shelter. When entering the heated shelter, the outer layer of clothing should be removed and the remainder of the clothing loosened to permit sweat evaporation or a change of dry work clothing provided. A change of dry work clothing should be provided as necessary to prevent workers from returning to work with wet clothing. Dehydration, or the loss of body fluids, occurs insidiously in the cold environment and may increase the susceptibility of the worker to cold injury due to a significant change in blood flow to the extremities. Warm sweet drinks and soups should be provided at the work site to provide caloric intake and fluid volume. The intake of coffee should be limited because of the diuretic and circulatory effects.

For work practices at or below -12°C (10.4°F) ECT, the following should apply:

- The worker should be under constant protective observation (buddy system or supervision).
- The work rate should not be so high as to cause heavy sweating that will result in wet clothing; if heavy work must be done, rest periods should be taken in heated shelters and opportunity for changing into dry clothing should be provided.
- New employees should not be required to work full time in the cold during the first days of employment until they become accustomed to the working conditions and required protective clothing.
- The weight and bulkiness of clothing should be included in estimating the required work performance and weights to be lifted by the worker.
- The work should be arranged in such a way that sitting still or standing still for long periods is minimized.
- Unprotected metal chair seats should not be used.
- The worker should be protected from drafts to the greatest extent possible.

- The workers should be instructed in safety and health procedures.

- The training program should include as a minimum instruction in:
 - Proper rewarming procedures and appropriate first aid treatment.
 - Proper clothing practices.
 - Proper eating and drinking habits.
 - Recognition of impending frostbite.
 - Recognition of signs and symptoms of impending hypothermia or excessive cooling of the body even when shivering does not occur.
 - Safe work practices.

Note: This information has been adopted from the 2010-1011 "Threshold Limit Values for Chemical Substances and Physical Agents and Biological Indices" by the American Conference of Governmental Industrial Hygienists (ACGIH).

As conditions may vary, it will be at the discretion of the Field Operations Leader and the Site Safety Officer to temporarily suspend or terminate activities as conditions dictate. All site activities will be terminated in the advent of electrical storms, tornadoes, and other hazardous weather conditions.

9.15 CRYSTALLINE SILICA MONITORING PLAN

Personnel performing site activities have the potential to come into contact with cement and bentonite during the course of their work. Protective clothing help prevent the wearer from becoming dirty and good work practices help to reduce the spread of the cement on clothing, instruments, and equipment. Wear suitable personal protective equipment like overalls, protective footwear, gloves, and eye protection to protect the skin.

- In the event of skin contact and trapping, immediately clean the contaminated skin and protective clothing with large amounts of clean water.
- If clean running water is not available, have a cloth soaked in vinegar to wash the contaminated area.
- Remove wet cement immediately when it gets on clothing.

Personnel also need to take care when washing contaminated work clothes:

- Wash clothes as soon as possible after contamination has occurred.
- Wash contaminated clothing separately — do not wash clothes with the rest of the family's laundry.

- When washing contaminated clothing, wear rubber gloves and do not let the contaminated clothing come in contact with skin. If it does, wash the area thoroughly with soap and water.
- Wash clothes in hot water.
- Wash clothes in the longest normal wash cycle.
- Use one and a half the times of detergent used on a normal load.

Decontaminate the washing machine by running an empty cycle with hot water and detergent before using the washer for normal laundry.

9.16 NIGHT OPERATIONS LIGHTING PLAN

Not applicable.

9.17 FIRE PREVENTION PLAN

Fire prevention awareness and implementing administrative controls are the primary means to minimizing fire and explosion hazards to include development of project plans (e.g., HASP, WP, AHAs, Emergency Response Plan) to identify the areas where the potential for fire/explosion exist and providing procedures to mitigate the hazard. Potential work place fire hazards include:

- Small quantities (i.e. a few gallons or less) of flammable materials stored in flammable cabinets
- Portable gas cans
- Flammable gases (oxygen and acetylene)
- Fuel tanks on heavy equipment
- Flammable waste in waste accumulation areas (i.e. oily rags, waste aerosol cans)
- Propane gas
- Combustible materials stored close to heaters in office areas or in hot work zones
- Dry vegetation in contact with hot/operating machinery

Procedures that will be implemented to mitigate these potential fire hazards include:

- Employee awareness and training
- Proper use, storage and labeling of flammable liquids/gases.
- Portable fuel tanks (if used), not exceeding 660 gallons shall be provided with emergency venting and other devices, as required by chapters II and III of The Flammable and Combustible Liquids Code, NFPA 30-2000.
- Providing appropriate postings in areas where flammable liquids/gases are used or stored

- Areas with operation that constitute a fire hazard shall be have postings stating “No Smoking or Open Flame”
- Ensuring MSDS/SDS’s are available on-site for flammable materials in the work place
- Good housekeeping and storage of materials;
- Promptly contain, clean up, leaking or spilled flammable or combustible liquids and disposed of these materials properly.
- Containers shall be provided for the collection and separation of waste, trash, waste, oily or used rags, and other refuse.
- Store small quantities of flammable materials in Flammable Storage Cabinets
- Ensure flammable gases are properly stored in a dry, well-ventilated location, at least 50 feet from other combustible material, and secured when not in service.
- Storage of flammable liquids and gases away from oxidizers;
- Smoking will be allowed only in designated areas appointed by SSO;
- No hot work without a properly executed hot work permit.
- Grounding and bonding metal containers during transfer of flammable liquids;
- Use of UL approved flammable storage cans
- Fire extinguishers rated at least 10 pounds ABC located on all heavy equipment in all trailers and near all hot work activities
- Monthly inspections of all fire extinguishers.

9.17.1 Safe Fueling Guidance

To prevent fire and explosions while refueling vehicles or filling portable containers:

- Turn off your vehicle engine while refueling. Put your vehicle in park and set the emergency brake.
- Do not smoke, or light matches or lighters while refueling or when using gasoline anywhere else.
- Do not engage in other activities while pumping gas: you are transferring a hazardous substance that requires your full attention.
- While refueling, do not talk on your mobile phone or portable radio, or use your computer, personal digital assistant, pager or other electronic device unless these devices have been confirmed as intrinsically safe.
- Use only the refueling latch provided on the gasoline dispenser nozzle. Never jam open the refueling latch on the nozzle.
- Do not get in and out of your vehicle while refueling.
 - A static electric charge can develop on your body as you slide across the seat, and when you reach for the pump, a spark can ignite gasoline vapor.
 - Discharge any static electricity by touching metal on the outside of the vehicle, away from the filling point, before removing the nozzle from your vehicle.

- In the unlikely event a static-caused fire occurs when refueling, leave the nozzle in the fill pipe and leave the area immediately.
 - Notify the station attendant immediately.
- Do not overfill or top off your vehicle tank. Both can cause gasoline spillage.
- Avoid prolonged breathing of gasoline vapors. Use gasoline only in open areas that get plenty of fresh air.
 - Keep your face away from the nozzle or container opening.
- When dispensing gasoline into a container, use only an approved portable container and place it on the ground when filling to avoid a possible static electricity ignition of fuel vapors.
 - Containers should never be filled while inside a vehicle or its trunk, in the bed of a pickup truck or on the floor of a trailer.
 - Fill slowly to decrease the buildup of static electricity and minimize spilling or splattering.
 - Manually control the nozzle throughout the process, keeping the nozzle in direct contact with the container.
 - Fill it only about 95% full to leave room for expansion.
 - Place cap tightly on the container after filling; do not use containers that do not seal properly.
- If gasoline spills on the container, make sure that it has evaporated before you place the container in your vehicle. Report spills to the attendant.
- When transporting gasoline in a portable container, make sure the container is secured against tipping and sliding, and never leave it in direct sunlight or in the trunk of a car.
- Never siphon gasoline by mouth or put gasoline in your mouth for any reason.
 - Gasoline can be harmful or fatal if swallowed. If someone swallows gasoline, do not induce vomiting. Contact a doctor immediately.
- Keep gasoline away from your eyes and skin; it may cause irritation.
 - Remove gasoline soaked clothing immediately.
- Use gasoline as a motor fuel only. Never use gasoline to wash your hands or as a cleaning solvent.

9.18 WILD LAND FIRE MANAGEMENT PLAN

Not applicable.

9.19 HAZARDOUS ENERGY CONTROL PLAN

Not applicable.

9.20 CRITICAL LIFT PLAN

Not applicable.

9.21 CONTINGENCY PLAN FOR SEVERE WEATHER

The FOL/SSO will monitor the weather forecast daily. In preparation for an approaching storm, all equipment will be secured, and all doors and windows of the equipment will be closed. All tools and supplies will be stored in a designated secure location.

9.22 FLOAT PLAN

Not applicable.

9.23 SITE-SPECIFIC FALL PROTECTION & PREVENTION PLAN DEMOLITION PLAN

Not applicable.

9.24 DEMOLITION PLAN

Not applicable.

9.25 EXCAVATION/TRENCHING PLAN

Not applicable.

9.26 EMERGENCY RESCUE (TUNNELING)

Not applicable.

9.27 UNDERGROUND CONSTRUCTION FIRE PREVENTION AND PROTECTION PLAN

Not applicable.

9.28 COMPRESSED AIR PLAN

Not applicable.

9.29 FORMWORK AND SHORING ERECTION AND REMOVAL PLANS

Not applicable.

9.30 PRECAST CONCRETE PLAN

Not applicable.

9.31 LIFT SLAB PLANS

Not applicable.

9.32 STEEL ERECTION PLAN

Not applicable.

9.33 SITE SAFETY AND HEALTH PLAN FOR HTRW WORK

This Site Safety and Health Plan (SSHP) establishes policies and procedures to protect workers and the public from the potential hazards posed during field operations at SWMU 3. It was developed using historical site background information regarding known or suspected chemical contaminants, information obtained on previous site visits, and knowledge of potential physical hazards that may be associated with the proposed work at the site.

This SSHP will be modified, as necessary, if new information becomes available, and changes will be made with the approval of the Tetra Tech FOL/SSO and the HSM. Requests for modifications to the SSHP should be directed to the FOL/SSO. The FOL/SSO will notify the HSM, who will then notify affected personnel of the changes.

9.33.1 Site Description and Contamination Characterization

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.

Within the OJT is the OJT Treatment Area where five hot spots of contamination were identified. These hot spots are contaminated with one or more of the metal lead, 2,4,6-trinitrotoluene (TNT), and hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX). These hot spots are the focus of the investigation.

The OJT is a closed munitions demilitarization area that is adjacent to and downstream along the LSC valley south-southeast of the Main Treatment Area (MTA) of SWMU 3. The OJT Treatment Area was used from the mid-1970s through 1983. Materials to be demilitarized were treated at two separate regions of the OJT Treatment Area (the Burn Area and the Burn Pit).

At the burn area, bomb casings from which the bulk explosives had been removed were filed with initiating powder, tilted on-end toward a hillside east of the OJT Treatment Area, and flashed to complete the demilitarization process. Some munitions are thought to have been lashed to a horizontally positioned utility pole prior to flashing.

The term "pit" is a misnomer because the area is believed to be a natural topographic depression rather than an excavated pit. The burn pit was approximately 100 feet long, 30 feet wide, and 10 to 12 feet deep, located just south-southeast of the burn area. Powder was flashed and explosives-contaminated materials were burned in this pit. The contaminated material may have included cardboard, paper, wood, and metal packaging that may have come into contact with explosives, solvent-contaminated rags, and/or any other material that may have been contaminated with explosives. Small munitions items and components were also reportedly treated in the burn pits. The area has not been used for any operations since 1983 when it was filled with clean fill material and re-vegetated. The area is now overgrown with brush, trees, and grasses.

9.33.1.1 Chemical Exposure Potential

These hot spots are contaminated with one or more of the metal lead, 2,4,6-trinitrotoluene (TNT), and hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX) and present unacceptable levels of risk to human receptors as determined in the Resource Conservation and Recovery Act (RCRA) Facilities Investigation (RFI) Report.

Table 9-7 shows the Chemical of Potential Concern (COPC) in comparison to current Occupational Exposure Limit (OEL) from the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLV).

**TABLE 9-7
COMPARISON OF PARTICULATE CONCENTRATIONS
WITH CURRENT OCCUPATIONAL EXPOSURE LIMITS**

Volatile Organics			
Chemical of Concern	Highest Level Detected On Site	Amount of Dust-in-Air that would have to be generated before TLV would be reached	Current ACGIH TLV
TNT	1,700 mg/kg	14.7 mg/m ³	0.1 mg/m ³ , TWA ₈ Skin
RDX	2,400 mg/kg	52.1 mg/m ³	1.5 mg/m ³ TWA ₈
lead	10,200 mg/g	1.2 mg/m ³	0.05 mg/m ³ , TWA ₈

Table Notes:

TWA₈: Time-weighted average exposure concentration for a conventional 8-hour work period that is not to be exceeded.
 mg/m³: milligrams per cubic meter
 µg/kg: micrograms per kilogram
 mg/kg: milligrams per kilogram
 ppm: parts per million
 Skin: the material might be absorbed in toxicologically significant amounts through the skin and can contribute to the overall exposure and invalidate the TWA exposure evaluations.

The amount of dust-in-air that would have to be generated for the metals to reach current OELs is not within the range visible to the naked eye (>2.5 mg/m³), therefore it will be necessary to use a dust monitor at the site.

As direct contact will be minimal given the sampling method, it is unlikely that exposure will occur. Area wetting techniques at the site will be employed to prevent dust generation. Exposure to these compounds is most likely to occur through incidental ingestion of contaminated water, or hand-to-mouth contact during sampling activities. For this reason, PPE and basic hygiene practices (washing face and hands before leaving site) will be the principal methods for minimizing exposures. The signs and symptoms of exposure for these substances are summarized below:

9.33.1.1.1 Explosive Contaminants

Routes of exposure are inhalation, ingestion, skin and eye contact. Signs and symptoms of overexposure may include headaches, dizziness, nausea, hyperactivity, convulsions, seizures, fatigue, and irritability rashes, dry skin and itchy eyes, respiratory problems, joint pain, sore throat, and depression. These effects may be experienced quickly or several hours later. Some can be topically irritating to skin and eyes.

9.33.1.1.2 Lead

Lead poisoning can affect almost every organ system. Organ systems primarily affected include the central and peripheral nervous systems, cardiovascular, gastrointestinal, renal, endocrine, and

hematologic systems. Lead can also adversely impact reproductive functioning and the developing fetus and child. The signs or symptoms may be varied and non-specific, and the clinician needs to consider the constellation of complaints and findings that may suggest lead poisoning as the diagnosis. Symptoms may be absent despite significant poisoning.

9.33.1.2 Potential Routes of Exposure

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

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

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

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

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

9.33.2 Hazard/Risk Analysis

The potential hazards associated with the site activities also include physical hazards and biological hazards. The potential for encountering various hazards will depend on the work being conducted, the location of that work, and the time of year. Specific hazards are discussed below. There are also environmental hazards associated with the physical location of the site (such as vehicular traffic) and weather conditions such as heat, noise, and flora and fauna contact. An AHA has been developed for each planned activity and operation occurring in each major phase of work for the project. Each AHA identifies the sequence of work, specific hazards anticipated, and the control measures to be implemented to minimize or eliminate each hazard. The AHA is used to augment daily health and safety meetings, and is intended to heighten safety and hazard awareness on the job. A pre-task briefing will be documented, and may be combined with the daily tailgate safety meeting. AHAs are the focal point for safe conduct of work on a project. Since each task is described and evaluated, workers should be better prepared to perform work safely. The FOL/SSO will discuss the risks and precautions associated with each task identified in the Work Plan. Daily tailgate safety meetings are held at the start of each shift. Prior to the day's activity, the safety meeting discusses the potential chemical, physical, and environmental hazards that could be encountered, along with preventive safety measures. During a work day, if there are any changes or new conditions to be addressed, the FOL/SSO will update the AHA and ensure the workers review the amended AHA. Attendance is mandatory for the employees involved in the specific work identified by the AHA. Amended AHAs must be reviewed by the PHSM. If a change must be implemented immediately and the PHSM cannot be contacted, the FOL/SSO may implement the change and forward a copy of the change to the PHSM as soon as possible, leaving a voicemail phone message for the PHSM. The AHAs for this project are located in Section 10.0 of the APP. The FOL/SSO will modify these AHAs as appropriate, add new AHAs for new tasks, and train the employees who perform the tasks on the appropriate AHA. The FOL/SSO will forward any modified or new AHAs to the PHSM for review and approval.

9.33.2.1 MEC/MEC Related Items Safe Work Practices

One of the obvious hazards associated with this activity is the potential for encountering MEC. The unintended detonation of MEC or a MEC related item could result in injury or possibly death.

MEC/MPPEH represents a potential safety hazard at this site and may constitute an imminent and substantial endangerment to personnel and the local populations due to its explosive potential. Activities involving work in areas potentially containing MEC hazards shall be conducted with approval from the Naval Ordnance Safety and Security Activity (NOSSA) and in accordance with OPNAV 8020.15, NAVSEA Operations Pamphlet (OP) 5, NOSSA Instruction (INST) 8020.15C, and Department of Defense (DOD) 6055.9-M., and other Department of Navy (DoN) and DOD requirements regarding personnel,

equipment, and procedures. Tetra Tech and any subcontractors to Tetra Tech will perform the work in accordance with the approved Explosives Safety Submission (ESS) Determination per NOSSAINST 8020.15C.

To address MEC hazards, the following measures will be incorporated.

9.33.2.1.1 General MEC Avoidance Measures

Tetra Tech Unexploded Ordnance (UXO) Support will perform a visual survey of the areas the Field Investigation Team will enter. During the pre-planning phase of the visit the team will identify the areas they wish to investigate.

- Site personnel will follow instructions and directions provided by the UXO Technician.
- Site personnel will restrict themselves to the areas identified by UXO personnel.
- UXO personnel will perform anomaly avoidance techniques during the collection of surface and subsurface soil sample.
- Personnel will be assigned in such a manner to permit the direct visual observation of one another as well as provide any emergency assistance should it be required.
- Personnel will notify the UXO Technician should they encounter suspected MEC/MPPEH articles or unidentified items.
- Smoking is prohibited on site.
- Matches, lighters, or other fire, flame, or spark-producing devices are prohibited the site.
 - Cell phones or two-way radios will be used under the direct supervision and expressed permission of the UXO Technician
 - Personnel shall suspend outdoor activities in the event of inclement weather (thunderstorms, lightning, heavy rain).

9.33.2.1.2 Subsurface Soil Sampling Measures

Surface soil samples are normally collected at depths from zero to 24 inches below ground surface. The following paragraphs describe anomaly avoidance procedures for soil sampling between zero and 24 inches below ground surface on a site with known or suspected MEC. The UXO Technician must conduct an access survey of the routes to and from the proposed investigation site as well as an area around the investigation site.

- The UXO Technician must visually survey the surface of each proposed surface soil sampling site for any indication of MEC/MPPEH impact.
- The UXO Technician will survey locations where surface/subsurface soil samples will be collected using a Schonstedt (or other similar magnetometer) for surface samples and a downhole magnetometer for subsurface.
- Locations will be surveyed to a depth of two feet to ensure they are clear of anomalies.
- If samples are to be collected at lower depths, the hand auger/DPT will be withdrawn and the downhole magnetometer will be used to survey the boring at 2 foot intervals.
- The procedure will be repeated until the subsurface samples are collected.
- If anomalies are detected at a proposed sampling location or too many anomalies are detected in a general area of interest, an alternate location for collection of surface soil samples will be selected.

Detected anomalies will be prominently marked with survey flagging or pin flags for avoidance during sampling activities.

9.33.2.2 *Classic Safety*

In the site hazard assessment, preliminary site-specific hazards will be identified through the AHAs generated during development of the SSHP to determine the appropriate safety and health procedures needed to protect workers from the identified physical, biological, chemical, and natural hazards. This section is intended to provide information on some of the most commonly encountered hazards associated with the tasks anticipated at SWMU 3. This section will also reference some of the common safe work practices, PPE, and administrative controls generally used to mitigate potential hazards. Some

of these hazards can be regarded as most severe or as more commonly-encountered in remedial activities such as these, and are further addressed in the following subsections.

9.33.2.2.1 Slips, Trips, and Falls

Planned activities associated with hazardous waste operations/construction operations will bring field personnel into areas where potential slip, trip, and fall hazards. These hazards may include the following:

- Uneven terrain due to excavation
- Plastic protective covers (e.g., associated with temporary decontamination pads)
- Work place clutter (e.g., tangled hoses)

Hazards of this nature and the potential consequences of injury from a slip, trip or fall are magnified when personnel are maneuvering and carrying equipment on these work sites. Control measures may include the following:

- Selecting the best approach routes to work areas and locations, keeping in mind that these may not be the shortest routes
- Where necessary, using rope ladders and associated mechanisms to aid in ascent and descent
- Applying traction grit such as sand over slippery surfaces
- Maintaining good housekeeping practices.

The FOL/SSO will evaluate all walking/working surfaces to ensure these comply with the objectives stipulated in 29 CFR 1926 Subparts C – General Safety and Health; G – Signs, Signals and Barricades; Subpart L – Scaffolds; Subpart M – Fall Protection; and Subpart X – Stairways and Ladders. Requisite strength, heights and widths, and fall protection will be evaluated.

9.33.2.2.2 Head and Back Injuries

At a minimum, workers will don safety shoes/boots and safety glasses prior to performing any or investigation activities. Hard hats will be worn when overhead hazards are present or heavy machinery (e.g., direct-push rigs, drill rigs) is in use. This will prevent minor injuries caused by bumping one's head while working around and under equipment and vegetation. Personnel are instructed in proper lifting techniques and will not lift heavy items without assistance. Each worker will not lift more than 50 pounds. Objects heavier than 50 pounds, and those with uneven weight distribution, may require assistance from another person. Supervisors will use mechanical lifting equipment whenever possible to minimize worker exposure to lifting hazards.

9.33.2.2.3 Falling Objects

The items raised will be slowly lowered to the ground using a grapple and/or skip bucket. No personnel will work under equipment at any time. Also, the supervisor will verify that an adequate area is clear of personnel while the equipment is in operation.

9.33.2.2.4 Heavy or Awkward Lifting

Hazards associated with heavy or awkward lifting become more predominant in the early morning hours (prior to muscles becoming limber) and later in the day (as a result of fatigue). The following provisions will be used to minimize hazards of this nature:

- Use machinery, lifting assist devices (two wheeled carts or dollies), or multiple personnel for heavy lifts, where possible.
- Use proper lifting techniques.
- Plan your lifts
 - Place heavy items on shelves between the waist and chest and lighter items on higher shelves.
 - If the load must be carried to another location, plan and inspect the route to ensure that slipping/tripping hazards are absent.
- Stretch and limber muscles prior to and after extended periods/frequent lifts.
- “Test” the lift, i.e., before attempting to fully lift or move an object, give the object a “nudge” to assess its approximate weight and your ability to safely lift and move it without injury.
- If you are unsure that you can complete the lift without hurting yourself, either get a lifting aid (such as a dolly or mechanical hoist), get help from others, or both.
- Move as close to the load as possible, and ensure that good hand holds are obtainable. Wear gloves where necessary to improve hand holds.
- Lift with your legs not your back, bend your knees and avoid turning and twisting when lifting, carrying, or depositing loads.
- Break lifts into steps if the vertical distance from the starting point to the placement of the lift is excessive.

- Periods of high-frequency lifts or extended-duration lifts should include sufficient breaks to guard against fatigue and injury.

- Assess the area available to maneuver the lift.
 - Rearrange the area, remove clutter, and minimize the necessity of twisting and turning.

- Evaluate area of the lift.
 - Conditions of the walking/working surfaces where the lift will occur, over the planned path of travel, and at the location the load will be deposited.
 - Conditions such as poor housekeeping/clutter, slippery surfaces, and rough or uneven terrain may magnify the potential for injury during a lift.

- Your overall physical condition
 - Report previous injuries on your Medical Data Sheet.
 - DO NOT attempt to lift items that will put you at risk.
 - Break loads that you must carry into smaller manageable loads, and get assistance whenever significant lifting tasks are involved.

By evaluating applicable contributing factors, planning your lifts, and incorporating feasible control measures, the potential for injury associated with lifting can be minimized.

9.33.2.2.5 Noise

Site activities will not expose site personnel to equipment or conditions exceeding occupational noise exposure limit action levels. However, if abnormal conditions exist and site personnel are exposed to noise equal to or exceeding the OSHA 8-hour Time-Weighted Average sound level [85 decibels adjusted (dBA)] the FOL/SSO will ensure the following measures are employed:

- Effective use of hearing protection will be implemented by personnel working near the excessive noise sources.
- Site workers will evacuate to a safe area until the noise subsides
- Engineering and/or administrative controls may be used to reduce employee exposures to noise.

Workers on site will be informed to observe the “noise rule of thumb” on this project, described as follows:

- In general, if a worker must raise his/her voice to be heard by someone standing next to him/her (within 2 feet), noise levels may be exceeding 85 dBA and hearing protection will be required.

9.33.2.3 Biological Hazards

Biological hazards may be encountered on site. Workers should anticipate the increased likelihood of encountering these hazards. Insect stings can cause localized swelling, itching, and minor pain that can be handled by first aid treatment. In sensitized individuals, however, effects can be more serious such as anaphylactic shock, which can lead to severe reactions in the circulatory, respiratory, and central nervous system and, in some cases, even death. The FOL/SSO will identify personnel with a known reaction to bites and stings at the pre job safety orientation meeting. Personnel will not attempt to capture or feed any wild or semi wild animals such as cats, rats, or ground squirrels due to the possibility of a bite or parasitic infestation. Animal and bird droppings often contain mold, fungus, or bacteria that represent a significant respiratory hazard, including lung diseases and allergies. Personnel will not touch visual droppings.

9.33.2.3.1 Insects

Insects, including bees, wasps, hornets, spiders and ticks, may be present at this site making the chance of a bite or sting very possible. Some individuals may have a severe allergic reaction to an insect bite or sting that can result in a life threatening condition; any individuals who have been bitten or stung by an insect will notify the SSHO. Field personnel who may have insect allergies will provide this information to the SSHO prior to commencing work, and will have allergy medication on site. The following is a list of preventive measures: Apply insect repellent prior to fieldwork and as often as needed throughout the work shift. Apply DEET (vapor-active repellent) to any exposed skin surface (except eyes and lips), and apply the permethrin repellent spray to field clothing. Note: Allow the permethrin to dry before using the treated clothing. Wear proper protective clothing (work boots, socks and pants). When walking in vegetated areas, avoid contact with bushes, tall grass, or brush as much as possible.

Mild insect stings or bites should be treated by applying a baking soda paste or ice wrapped in a wet cloth. Bee stingers should be gently scraped off the skin, working from the side of the stinger. The suction device in commercially available snake bite kits can also be used to remove the stinger. If insect bites become red or inflamed or symptoms such as nausea, dizziness, shortness of breath, etc., appear, medical care will be sought immediately. Immediate medical care is essential for persons who are allergic to insect bites/stings. If an allergic person receives spider bite or insect bite/sting, seek immediate medical attention, keep the victim calm, and check vital signs frequently. Rescue breathing should be given, if necessary, to supply oxygen to the victim.

9.33.2.3.1.1 Spiders

Various spiders may be encountered at the SWMU 3; however, two spiders are potentially in the area that are poisonous – the Black Widow and Brown Recluse. The Black Widow spider varies from dark brown to black in color. Its body is 1/4 inch wide and overall size is 1-1/2 inches with legs extended. Only the female is poisonous and can be determined by the red or yellow hourglass marking the underside of the abdomen. The Brown Recluse has a characteristic fiddle-shaped pattern on their head region. The spider is golden brown with the fiddle being dark brown or black. This spider is not hairy and the fiddle pattern is often shiny. They are about 1/4 to 3/4 inch long. The victim will experience the following if a Black Widow or Brown Recluse spider has bitten them:

- The spider's bite will feel like a sharp pinprick or may not even be noticed.
- In 15 minutes or less, the person will feel a dull numbing pain in the bitten area.
- A faint red bite mark appears.
- Black Widow bites in the lower part of the body or legs will cause the victim will have muscle stiffness or cramps in their abdomen.
 - If the bite is on the upper body or arms, the victim will have muscle stiffness or cramps affecting the shoulders, back, or chest.
 - Additionally, the victim may experience headache, chills, fever, heavy sweating, dizziness, nausea, vomiting, and severe abdominal pain.
- Brown Recluse bite severity may vary.
 - The symptoms may vary from no harm to a very severe reaction.
 - Often there is a systemic reaction within 24-36 hours characterized by restlessness, fever, chills, nausea, weakness, and joint pain.
 - Where the bite occurs there is often tissue death and skin is sloughed off. In some severe cases, a wound may develop that lasts several months.
- First aid procedures for spider bites are as follows:
 - Clean the bitten area with soap and water or rubbing alcohol.
 - Do not apply a constricting band because the black widow venom's action is swift; there is little to be gained by trying to slow absorption with a constriction band.
 - To relieve pain, place an ice pack over the bite.
 - Keep the victim quiet and monitor breathing.
 - Seek immediate medical attention.
 - If possible, catch the spider to confirm its identity, even if the body is crushed.

9.33.3 Staff Organization, Qualifications and Responsibilities

See Section 4.0 of the APP.

9.33.4 Training

See Section 6.0 of this APP.

9.33.5 Personal Protective Equipment

The levels of personal protection to be used for work tasks at the SWMU 3 site have been selected based on the nature of the planned work activities and on the known or anticipated hazards; types and concentrations of contaminants that may be encountered onsite; and contaminant properties, toxicity, exposure routes, and matrixes.

PPE is selected by the PHSO when writing the SSHP, and is confirmed through a rigorous review process by the Tetra Tech HSM. To assure proper PPE has been selected, both the physical and chemical hazards present at the job site are taken into account in both developing and reviewing safety-related documents.

The anticipated levels of protection selected for use by field personnel during site activities is the U.S. Environmental Protection Agency (EPA) Level D. If site conditions performed during site activities warrant a higher level of protection, the field personnel will withdraw from the site, immediately notify the Tetra Tech PHSO, and obtain further instructions.

PPE levels can be upgraded or downgraded based on a change in site conditions or investigation findings. When a significant change in site conditions occurs, hazards will be reassessed.

PPE has been selected based on the results of task-specific hazard assessments. Through the completion of employee training (e.g., introductory 40-hour hazardous waste training, annual refresher training, etc.), Tetra Tech employees have been informed of the proper selection, use, and care of PPE items provided to them. After PPE is provided to an employee, the responsibility for using and caring for it appropriately is the responsibility of that employee. The FOL/SSO is responsible for assuring that these responsibilities are fulfilled through daily observations and work area inspections at the sites. The FOL/SSO is also responsible for assuring that appropriate and adequate supplies of PPE are maintained such that they are readily available for issuance/replacement and in a clean and sanitary manner and location. The site personnel will use the procedures presented in the AHAs to obtain optimum performance from PPE.

The levels of personal protection to be used for work tasks have been selected based on the nature of the planned work activities and on the known or anticipated hazards. Specific PPE selected for this project is listed, by task, in the AHAs located in Section 10.0 of the APP. The PPE minimum is as follows:

- Safety glasses with side shields when there is a possibility of splashing liquids
- Hard hat if near overhead hazards
- Shirts and long pants
- Water resistant shoe/boots with slip-resistant soles
- Tyvek® coverall type suits if a chance of soiling clothing

9.33.6 Medical Surveillance

Personnel performing onsite work that will result in exposure to contaminant-related health and safety hazards shall be enrolled in a medical surveillance program that complies with OSHA standards 29 CFR 1910.120 (f) and 29 CFR 1926.65(f). Site personnel will have had a physical examination, conducted by a board certified occupational medicine physician, which meets the requirements of Tetra Tech's medical surveillance program. Certification of medical surveillance program participation is appended to the SSHP. The certification shall include:

- Employee name
- Date of last examination
- Name of examining physician(s).

The required written occupational physician's opinion shall be made available upon request to the USACE Contracting Officers Representative. The medical records shall be maintained in accordance with 29 CFR 1910.1020. Attachment I contains the certification of participation in a medical surveillance program.

9.33.7 Exposure Monitoring/Air Sampling Program

Previous data indicates that the contaminants could be present in significant concentrations to present an inhalation hazard during planned site activities, as a precautionary measure to assure that such exposures are avoided and documented, plus the metals may be below the visible spectrum. For these reasons a dust particulate monitor will be used to monitor worker dust particulate exposures present at the site. Real-time monitoring instrumentation, action levels, and identified PPE will be used to control exposures to potentially contaminated media. According to the OSHA standard for Particulates Not Otherwise Regulated (PNOR) the PEL for total dust is 15 mg/m³.

Generation of dusts should be minimized. If the PEL is achieved, use area wetting methods. Site contaminants may adhere to or be part of airborne dusts or particulates. The generation of dusts should be minimized to avoid inhalation of contaminated dusts or particulates.

9.33.7.1 Particulate Monitoring

For this project, evaluation of dust concentrations will be performed by using a MiniRAM (or equivalent) dust particulate meter and by observing work conditions for visible dust. The MiniRAM is a portable, nephelometric, airborne particle monitor/dust monitor. The instrument measures the concentration of airborne particles (both solid and liquid). The ranges are 0.01 to 10 mg/m³ and 0.1 to 100 mg/m³.

This instrument will be used in the worker breathing zone (BZ), while observing instrument action levels. The SSO shall obtain and document the daily background reading at an upwind, unaffected area and observe for readings above that background level. The SSO shall monitor source areas (e.g., above collected samples and confined areas, etc.) for the presence of any reading above the daily-established background level.

If elevated readings are observed above the PEL of 15 mg/m³, the SSO shall monitor the workers' BZ areas with the dust monitor. If elevated readings are observed, the following process will be followed:

- The SSO shall order site 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 begin wetting procedures to control dust and then re-approach the work area while continuously monitoring the BZ areas.
- Only when levels are below the PEL standard in BZ areas will work be permitted to resume.
- If background levels are not regained, the SSO will contact the HSM for additional direction.
- Workers can only be exposed to lead at concentrations less than 50 micrograms per cubic meter of air averaged over an 8-hour period.

9.33.7.2 Instrument Maintenance and Calibration

Hazard monitoring instruments will be maintained and pre-field calibrated by the equipment vendor. Operational checks and field calibration will be performed on the instruments by site personnel 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 (copies of which can be found in the HSGM which will be maintained on site for reference). Calibration efforts must be documented. Figure 9-4 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 9-4 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

9.33.7.3 Documenting Instrument Readings

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

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

If a change in site conditions should occur (i.e., are wetting techniques are insufficient to control dust generated during heavy activities) field personnel will withdraw from the site, immediately notify the SSO, and wait for further instructions. The SSO will then make the determination if any upgrade in protective equipment (including the use of respirators) is necessary.

9.33.8 Heat and Cold Stress

See Section 9.14 of this APP.

9.33.9 Standard Operating Procedures, Engineering Controls and Work Practices

In addition to the task-specific work practices and restrictions identified in the AHAs found in Section 10.0 of the APP, the following general safe work practices are to be followed when conducting work on-site.

- Personnel engaged in onsite activities will practice the "buddy system" to ensure the safety of personnel involved in this operation.
- 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.
- 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.
- The use of waterless hand cleaning products is acceptable if followed by actual hand-washing as soon as practicable upon exiting the site.
- Avoid contact with potentially contaminated substances including puddles, pools, mud, or other such areas.
- Avoid, kneeling on the ground or leaning or sitting on equipment.
- Plan and mark entrance, exit, and emergency evacuation routes.
- Rehearse unfamiliar operations prior to implementation.
- 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 FOL/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.

9.33.9.1 Material Handling Procedures

Tetra Tech personnel should notify supervisors or designated safety representatives of pre-existing medical conditions that may be aggravated or re-injured by lifting activities, such that the Tetra Tech may evaluate safe operational procedures with regard to the required task.

- Proper lifting techniques (use of knees and not back) must be used when lifting any object:
- Plan storage and staging to minimize lifting or carrying distances.
- Split heavy loads into smaller loads.
- Use mechanical lifting aids whenever possible.
- Have someone assist with the lift especially for heavy (>40 lbs.) or awkward loads.
 - If site personnel are not capable of lifting 40 lbs., seek assistance from a team member to split the load.
- Make sure the path of travel is clear prior to the lift.

9.33.9.2 Drum/Container/Tank Handling

During the execution of the contract, the only type of generated waste materials will be in the form of used PPE.

9.33.9.3 Comprehensive AHA of Treatment Technologies

See Section 10.0 of the APP.

9.33.10 Site Control Measures

This section outlines the means to delineate work zones and use these work zones in conjunction with decontamination procedures to prevent the spread of contaminants into previously unaffected areas.

9.33.10.1 Control Zones

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. Site personnel entering the exclusion zone and contamination reduction corridor will log-in and log-out with the FOL/SSO on a daily basis. This information will be kept in the FOL/SSO project log book.

9.33.10.2 Exclusion Zone

The exclusion zone will be considered those areas of active operations plus an established safety zone depending on the task. The following represent the exclusion zone boundaries for the following identified tasks:

- MEC Avoidance Operations – 200 feet surrounding the work zone
- Soil boring using direct push technology (DPT) – 35-feet
- Hand augering and surveying – 10-feet
- Low pressure decontamination activities – 10-feet
- High Pressure washing and heavy equipment decontamination operations – 35-feet
- IDW Storage area – Authorized personnel only

Exclusion zones will be delineated using barrier tape, cones and/or drive poles, and postings to inform and direct facility site personnel and visitors, as necessary.

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

9.33.10.3 Contamination Reduction Zone

The contamination reduction zone (CRZ) will be a buffer area between the exclusion zone and any area of the site where contamination is not suspected. This area will also serve as a focal point in supporting

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

9.33.10.4 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.

9.33.10.5 Site Visitors

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

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

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

9.33.10.6 Site Security

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

site referring interested parties to the Base Contact. The Base Contact will serve as a focal point for base personnel, interested parties, and serve as the final line of security and the primary enforcement contact.

9.33.10.7 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. The FOL will determine and arrange for telephone communication procedures. Workers should enter the emergency and important phone numbers from Table 9-1 in Section 9.2.4 into their cell phones prior to beginning work.

9.33.11 Personal Hygiene and Decontamination

This section provides decontamination procedures and guidelines for developing site and activity specific decontamination procedures.

9.33.11.1 Responsibilities

The PHSO shall ensure that decontamination measures are adequately addressed in the Site Specific Health and Safety Plan. The FOL/SSO is responsible for establishing a decontamination area. The FOL/SSO also ensures that adequate decontamination procedures are followed to prevent contamination of individuals or the environment beyond the exclusion zone. The PM will ensure that sufficient information has been provided to the PHSO to prepare adequate decontamination procedures for inclusion in the SSHP.

9.33.11.2 Decontamination

Decontamination involves physically removing contaminants and/or converting them chemically into harmless substances. Decontamination, proper PPE donning procedures, and safety zones minimize the chance of cross-contamination from protective clothing to wearer, equipment to personnel, and one area to another.

The decontamination will consist of a soap/water wash and rinse for outer protective equipment (e.g., boots, gloves, PVC splash suits, etc.). This function will take place at an area adjacent to the drilling operations bordering the support zone.

This decontamination procedure will consist of:

- Equipment drop
- Soap/water wash and rinse of outer gloves and outer boots, as applicable
- Soap/water wash and rinse of the outer splash suit, as applicable
- Wash hands and face, leave contamination reduction zone

The FOL/SSO will determine the organization and materials used. Factors that are considered include: the extent and type of hazard expected, meteorological conditions, topography, levels of protection selected, and availability of equipment and supplies.

9.33.11.3 Contamination Avoidance

Avoiding contamination is the first and best method for preventing the transfer of contamination to personnel or to non-contaminated areas. Each person involved in site operations must regularly practice the methods, listed below, for contamination reduction.

- Know the limitations of the protective equipment being used.
- Do not sit or lean against anything in a contaminated area.
- Waste containers should be checked for incompatible materials.
- Do not set sampling equipment directly on contaminated areas.
- Use the proper tools to safely conduct the job.

9.33.11.4 Decontamination Guidance

Personnel decontamination will consist of a soap/water wash and rinse for outer protective equipment (boots, gloves, splash suits, etc.). This function will take place at an area adjacent to the site activities.

Decontamination procedures will be reviewed with site personnel prior to entering the EZ. Each person will be given precise instructions and be acquainted with the procedure for moving through the decontamination line. Progress through the decontamination line will be deliberate, organized to minimize hazard contamination for personal.

9.33.11.5 Closure of the Decontamination Line

When the decontamination line is no longer needed, it will be closed down by site personnel. The disposable items used during the operation will be double-bagged and contained onsite, or removed to an

approved off-site disposal facility. Decontamination and rinse solutions may be discarded onsite if approved by regulatory agencies. If not, they will be removed to an approved disposal facility. Reusable clothing should be dried and prepared for future use. If gross contamination had occurred, additional decontamination or disposal of these items may be required. Cloth items must be bagged and removed from the site for final cleaning or disposal. Wash tubs, pails, containers, etc., must be thoroughly washed, rinsed, and dried before removal from the site.

9.33.12 Sampling Equipment Decontamination

Sampling equipment will be decontaminated as stated per the requirements in the Work Plan. MSDS/SDS for any decontamination solutions (such as Alconox[®], methanol, isopropanol, hexane, etc.) will be obtained and used to determine proper handling / disposal methods and protective measures (PPE, first-aid, etc.). The sampling equipment used will require a complete decontamination between locations and prior to removal from the site.

The equipment used in the exclusion zone will require a complete decontamination between locations and prior to removal from the site.

The FOL/SSO will be responsible for evaluating equipment arriving onsite and that which is to leave the site. Equipment will only be authorized access or exit with this authorization.

Evaluation will consist of a visual inspection to ensure that visible contamination has been effectively removed.

9.33.13 Emergency Equipment and First Aid

The following emergency equipment will be strategically placed and maintained onsite:

- A first aid kit meeting the requirements of OSHA and EM 385-1-1, Section 03.B.01, will be readily available at each work site by having the kit available and ready for use.
 - The location of each first aid kit shall be clearly marked, and kits shall be protected from the weather and maintained clean.
 - The kit must contain all the items listed in Figure 9-5 Requirements for Basic Unit Packages (from Section 3 of the EM 385-1-1 Manual) and include one pocket mouthpiece or CPR barrier and latex gloves.
 - The kit will be inspected weekly and items shall be replaced as they are used.

- Eye wash units (or bottles of disposable eyewash solution) are maintained during sampling activities due to the small quantities of corrosive preservatives and well construction activities due to the caustic nature of the cement/grout products.
 - These units are acceptable due to extremely small quantity of the corrosives.
 - These will be used as adjunct support until access to a fixed unit or the medical provider at Union Hospital.
 - These units will be maintained in a clean location and inspected each week.

- Fire extinguishers will be maintained onsite and shall be immediately available for use in the event of an emergency. 2A:10BC for general support activities.

- If fuel will be transferred from portable fuel cans, they will be Underwriters Laboratory (UL) approved safety cans properly labeled.
 - If greater than 25 gallons is stored onsite a 5A:60BC fire extinguisher will be mounted within 50 feet of the fueling location.

- Fire extinguishers will be inspected monthly to ensure:
 - Sufficient charge
 - No physical damage
 - Tamper indicators are in place
 - Inspection tag documents inspection

- Site personnel will be trained in the use of the fire extinguisher as part of site specific training.

9.33.13.1 First Aid

Tetra Tech personnel will perform rescue operations from emergency situations and may provide initial medical support for injury/illnesses requiring only "Basic First-Aid and Cardio Pulmonary Resuscitation (CPR)" level support, and only within the limits of training obtained by site personnel.

Basic First-Aid is considered treatment that can be rendered by a trained first aid provider at the injury location. Medical attention above First-Aid level support will require assistance from the designated emergency response agencies. At least two Tetra Tech site personnel will be trained to this level while working onsite.

9.33.14 Emergency Response and Contingency Procedures

In the event of an emergency during onsite work, the primary response action by onsite personnel will be to safely evacuate, assemble at an area unaffected by the emergency, and notify the POC. Workers who are ill or who have suffered a non-serious injury may be transported by site personnel to nearby medical facilities, provided that such transport does not aggravate or further endanger the welfare of the injured/ill person.

Site personnel will record 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 which will be filed onsite.

The local NSA Crane 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 POC will be notified if these response agencies are contacted.

Tetra Tech personnel will provide insipient emergency prevention activities such as:

- Initial (e.g., non-structural) fire-fighting support (fire extinguisher) and prevention
- Initial spill control and containment measures and prevention
- Evacuate personnel from emergency situations
- Initial medical support for injury/illness requiring only first-aid level support

9.33.14.1 Pre-Emergency Planning

Based on the nature of the planned activities, emergencies resulting primarily from physical hazards could be encountered. To minimize or eliminate the potential for these emergency situations, pre-emergency planning activities will include the following:

- Coordinating with the NSA Crane Emergency Response personnel prior to the 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.

- Creating and maintaining documents onsite that can be important in the event of an emergency situation, including:
 - A Chemical Inventory of hazardous chemicals onsite
 - Corresponding MSDS/SDS.
 - Completed Medical Data Sheets (Figure 9-3) for onsite personnel.
 - A log book identifying personnel onsite each day.
 - Hospital route maps with directions.
 - Emergency Notification - phone numbers.

In the event of an onsite emergency, the FOL/SSO will be responsible for the following tasks:

- Determining that an emergency situation exists, initiating a site evacuation, accounting for onsite personnel at the assembly area, and determining if/when return to work conditions resume.
- With assistance from the FOL/SSO, educating site workers to the hazards and control measures associated with planned activities at the site, and providing early recognition and prevention.
- With assistance from the FOL/SSO, periodically performing practice drills to ensure site workers are familiar with incidental response measures.

9.33.14.2 Personnel and Lines of Authority for Emergency Situations

In the event of an emergency situation the FOL/SSO will serve as the Incident Commander until the NSA Crane emergency services arrive on site. Other site personnel will provide support and follow direction from the Incident Commander.

9.33.14.3 Criteria and Procedures for Emergency Recognition and Site Evacuation

Emergency situations may be encountered during site activities.

9.33.14.3.1 Emergency 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 chemical hazards. To adequately recognize chemical exposures, site personnel must have an awareness of signs and symptoms of exposure associated with the principle site contaminant of concern. Tasks to be performed at the site, potential hazards associated with those tasks and the recommended control methods are discussed in this SSHP and APP. Additionally, early recognition of hazards will be

supported by daily site surveys to eliminate any situation predisposed to an emergency. The FOL/SSO will be responsible for performing and documenting surveys of work areas prior to initiating site operations and periodically while operations are being conducted. Site personnel are responsible for reporting perceived hazardous situations.

The above actions will provide early recognition for potential emergency situations, and allow Tetra Tech to instigate necessary control measures. However, if the FOL/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.

9.33.14.3.2 Site Evacuation

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; 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/SSO. Safe places of refuge will be identified prior to the commencement of site activities and will be conveyed to personnel as part of the pre-activities training session. This information will be reiterated during daily safety meetings. Whenever possible, the safe place of refuge will also serve as the telephone communications point for that area. During an evacuation, personnel will remain at the refuge location until directed otherwise by the Tetra Tech FOL/SSO or the Emergency Response Team Incident Commander. The FOL/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 FOL/SSO will document the names of personnel onsite (on a daily basis) in the site Health and Safety Logbook. This information will be utilized to perform the head count in the event of an emergency.

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

9.33.14.3.3 Emergency Alarm Systems

Tetra Tech personnel will be working in close proximity to each other at SWMU 3. As a result, hand signals, two-way radio communications, voice commands, and line of site communication will be sufficient to alert site personnel of an emergency. When project tasks are performed simultaneously on different sites, vehicle horns will be used to communicate emergency situations. If an emergency warranting evacuation occurs, the following procedures are to be initiated:

Initiate the evacuation via radio communications, hand signals, voice commands, line of site communication, or vehicle horns. The following signals shall be utilized when communication via vehicle horn is necessary:

HELP	three short blasts	(. . .)
EVACUATION	three long blasts	(- - -)

- Report to the designated refuge point.
- Once non-essential personnel are evacuated, appropriate response procedures will be enacted to control the situation.
- Describe to the FOL/SSO (who will serve as the initial Incident Coordinator) pertinent incident details.

9.33.14.4 Decontamination and Medical Treatment of Injured Personnel

Based on the nature of the planned activities and on the nature and extent of contamination that may be encountered during these activities, the need for any specific personal decontamination activities in an emergency medical situation is highly unlikely. In the unlikely instance that such efforts become necessary, decontamination procedures will be performed only if doing so does not further jeopardize the welfare of the involved personnel. Decontamination will be postponed if the incident warrants immediate evacuation. As soon as possible and prior to transportation to a medical center the contaminated site worker will be:

- Washed and rinsed
- Contaminated clothing removed and disposed of as hazardous waste
- First aid treatment rendered

9.33.14.5 Route Maps and Phone Numbers for Emergency Responders

The closest hospitals are in Bloomington and Bedford. The Emergency Departments are open 24 hours a day, 365 days a year, and are equipped to treat all illnesses and injuries, whether minor, serious or life threatening. The routes to these hospitals are in Figure 9-2.

Prior to initiating field activities, personnel will be thoroughly briefed on the emergency procedures to be followed in the event of an accident. Table 9-1 in Section 9.2.4 provides a list of emergency contacts and telephone numbers. This table must be posted where it is readily available to site personnel.

9.33.14.6 Criteria for Alerting Local Community Responders

In the event of an emergency situation, the FOL/SSO will enact emergency notification procedures to secure additional assistance in the following manner:

- Dial emergency numbers listed in Table 9-1 and report the incident.
- Give the emergency operator the:
 - Location of the emergency
 - Type of emergency
 - Number of injured
 - 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.

9.34 BLASTING SAFETY PLAN

Not applicable.

9.35 DIVING PLAN

Not applicable.

9.36 CONFINED SPACE PROGRAM

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 APP are not allowed, under any circumstances, to enter confined spaces. 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.

10.0 RISK MANAGEMENT PROCESSES

Work conducted in support of this project will be performed using the Activity Hazard Analysis (AHA) process to guide and direct field crews on a task by task basis. It is the FOL/SSO's responsibility to review the AHAs with the task participants as part of a pre-task tailgate briefing session.

Daily safety meetings will be conducted during site work and the task-specific AHA(s) will be reviewed prior to initiating any field activities. This effort will ensure that site-specific considerations and changing conditions are incorporated into the planning effort. Use of the APP will provide the line of communication for reviewing task-specific hazards and protective measures associated with each operation. The APP will be used as the primary reference for selecting levels of protection and control measures.

The FOL/SSO is responsible for making the parties aware of the contents and requirements of the APP. Any problems encountered with the protective measures required will be documented and brought to the attention of the FOL/SSO.

As an ongoing quality assurance effort, the FOL/SSO will review operations to ensure the AHAs adequately address potential hazards for the tasks being conducted. Where deficient, they will be corrected and that information shared with the field personnel. Amended AHAs will be forwarded to the PHSO for inclusion in future APPs for similar activities. See Table 10-1.

TABLE 10-1
Activity Hazard Analysis

Revision 1
May 2014

Activity/Work Task: Mobilization - Demobilization		Overall Risk Assessment Code (RAC) (Use highest code)					L
Project Location: SWMU 3, NSA Crane		Risk Assessment Code (RAC) Matrix					
Contract Number: N62470-08-D-0001		Probability					
Date Prepared: June 10, 2013/Revised: May 8, 2014		Severely	Frequent	Likely	Occasional	Seldom	Unlikely
Prepared by: J. Laffey, CESCO		Catastrophic	E	E	H	H	M
Reviewed by: R. Brooks		Critical	E	H	H	M	L
		Marginal	H	M	M	L	L
		Negligible	M	L	L	L	L
Notes: (Field Notes, Review Comments, etc.)		Step 1: Review each "Hazard" with identified safety "Controls" and determine RAC (See above)					
		"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom, or Unlikely.					
		"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible					
		Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.					
		RAC Chart					
		E= Extremely High					
		H= High					
		M= Moderate					
		L= Low					
ACTIVITY / PHASE	HAZARDS	CONTROLS					RAC
<ul style="list-style-type: none"> Assembling equipment and supplies Performing initial/exit inspections of the intended work areas Arranging for utilities, site access, notifying appropriate client contacts Performing equipment inspections of vehicles and equipment arriving/preparing to leave the site Conducting site 	<ol style="list-style-type: none"> Heavy equipment Minor cuts, abrasions or contusions Heavy lifting (muscle strains and pulls) Vehicular traffic when moving large equipment to the support area 	<ol style="list-style-type: none"> Conduct heavy initial site acceptance inspection prior to performing any work at this site. Use the equipment inspection checklist for excavation equipment in Attachment II. Once the equipment passes inspection the AHA for Excavation Area Safety will be followed. Wear cut-resistant gloves when handling items with sharp or rough edges. Practice safe lifting techniques. Use mechanical lifting devices such as a dolly whenever possible Ensure clear path of travel. Have a 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). Designate and mark vehicle and equipment staging areas. Inform the site personnel of heavy equipment areas and of their responsibility to stay clear of moving vehicles. In high traffic areas, wear a high-visibility vest, shirt or jacket. 	L				

ACTIVITY / PHASE	HAZARDS	CONTROLS	RAC
geographic surveys	<p>5. Slips, Trips, Falls</p> <p>6. Intermittent high noise levels</p> <p>7. Inclement weather</p> <p>8. Implement Site Specific Hazard Communication Program</p>	<p>1. Watch for tree branches, roots, weeds, limbs and other ground hazards.</p> <p>2. Wear appropriate foot protection to prevent slips and trips.</p> <p>3. Use caution when working on uneven and wet ground surfaces.</p> <p>1. Site 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 (approximately 2 feet) of them.</p> <p>2. FOL/SSO is responsible for determining and designating when hearing protection is required.</p> <p>3. Hearing protection is to consist of either ear muffs or plugs that have a noise reduction rating (NRR) of at least 25 decibels (dB).</p> <p>1. The FOL/SSO will temporarily suspend outside activities in the event of electrical storms or high winds.</p> <p>2. It is preferred that supported systems such as lightning detection devices or emergency weather broadcasts are employed.</p> <p>3. However, when this is not possible field personnel should use the 30/30 Rule:</p> <ul style="list-style-type: none"> • "If there is less than 30 seconds between thunder and lightning go inside and stay inside for at least 30 minutes after the last thunder." <p>1. Complete the chemical inventory for the project.</p> <p>2. Procure MSDS/SDSs for chemicals used exclusively on this project.</p> <p>3. Label containers used onsite for hazardous materials.</p> <p>4. Identification of any additional hazard communication training requirements.</p>	<p>L</p> <p>L</p> <p>L</p> <p>L</p>
<p>EQUIPMENT TO BE USED</p> <p>Hand tools (dollies, hand carts, hand knives, etc.)</p> <p>Personal Protective Equipment Minimum: Safety toe boots, safety glasses. Optional items: Hardhat, hearing protection.</p> <p>HTRW: None anticipated for this task.</p>	<p>INSPECTION REQUIREMENTS</p> <p>Visual inspection prior to use by user.</p> <p>Initial PPE inspection performed by FOL/SSO. Ongoing (prior to each use) inspections responsibilities of PPE users.</p>	<p>TRAINING REQUIREMENTS</p> <p>Review of AHA during pre-task 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 FOL/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

Overall Risk Assessment Code (RAC) (Use highest code)		Risk Assessment Code (RAC) Matrix					M
Severity	Probability					RAC Chart	
	Frequent	Likely	Occasional	Seldom	Unlikely		
Catastrophic	E	H	H	H	M	M	
Critical	E	H	H	M	L	L	
Marginal	H	M	M	L	L	L	
Negligible	M	L	L	L	L	L	

Step 1: Review each "Hazard" with identified safety "Controls" and determine RAC (See above)
 "Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom, or Unlikely
 "Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible
 Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.

JOB STEPS	HAZARDS	CONTROLS	RAC
DPT rig set up and operation Positioning Unit (engaging outriggers, etc.) Assembling equipment and supplies UXO Surface Sweep – Identifying MEC/UXO materials on the surface/hear travel (foot and vehicular) paths will be established within the area of concern, as well as within the grids/transects.	<ol style="list-style-type: none"> Struck By Tip Over Slips, Trips, Falls Minor cuts, or abrasions Heavy lifting (muscle strains and pulls) 	<ol style="list-style-type: none"> Hard hats and high visibility vests for all personnel in work area. Control work area (use flaggers, signage, barricades, and/or other means) and restrict all non-essential personnel from the area. Inspect rig and ensure that all equipment, augers, rods and tools will be properly secured during transport. Do not permit rig to attempt to traverse severely sloping terrain. Use a ground guide along with a functioning back-up alarm during equipment backing. Once rig is sited, deploy outriggers to properly block and level the rig and secure parking brake. Clear trees, roots, weeds, limbs and other ground hazards from the DPT location. Practice good housekeeping to keep the ground around the DPT site clear of obstructions, equipment and other tripping hazards. Wear appropriate foot protection to prevent slips and trips. Use caution when working on uneven and wet ground surfaces. When handling equipment and tools wear cut-resistant gloves when handling items with sharp or rough edges. Practice safe lifting techniques (use mechanical lifting devices such as a dolly whenever possible, ensure clear path of travel, good grasp on 	L

JOB STEPS	HAZARDS	CONTROLS	RAC
	<p>6. Insect bites</p> <p>7. Inclement weather</p>	<p>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).</p> <p>6. 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 for application). Tape up pants leg to work boot joints with duct tape. Wear light-colored clothing to better see and remove any insects. Perform close body inspections at least daily upon leaving the site.</p> <p>7. The FOL and/or the SSO will temporarily suspend outside activities in the event of electrical storms or high winds. It is preferred that supported systems such as lightning detection devices or emergency weather broadcasts are employed. However, when this is not possible field personnel should use the 30/30 Rule: <i>"If there is less than 30 seconds between thunder and lightning go inside and stay inside for at least 30 minutes after the last thunder."</i></p>	
DPT Operations	<p>1. Intermittent high noise levels</p> <p>2. Contact with equipment moving parts.</p> <p>3. Contact/striking underground or overhead utilities</p>	<p>1. Operators/hearby 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 responsible for determining and designating when hearing protection is required. Hearing protection is to consist of either ear muffs or ear plugs that have an NRR of at least 25 dB.</p> <p>2. Ensure that workers are thoroughly trained and competent to perform their assigned task with the equipment used in investigation. Ensure that back-up alarms are functional on equipment. The equipment operators and on-site Supervisors responsible for the equipment are to ensure that the equipment is properly inspected prior to being permitted onsite. Ensure that all moving parts are guarded if such parts are exposed. Check/test all emergency stop controls.</p> <p>3. Movement of rig with mast raised will be strictly prohibited. Inspect for buried and overhead utilities in the vicinity of the DPT location. Verify the location of utility lines in accordance with the Tetra Tech SOP Utility Location and Excavation Clearance located in Section 4 of the HSGM.</p>	L

JOB STEPS	HAZARDS	CONTROLS	RAC
DPT Rod / Auger / Tool Handling	<ol style="list-style-type: none"> 1. Struck by/entanglement 2. Overhead hazards 3. Slips, Trips, Falls 4. Contusions, cuts, or abrasions 5. Heavy lifting (muscle strains and pulls). 	<p>Pre-plan the move with the local utility companies if utility lines must be moved. Pre-survey the height of equipment and height of utility lines to determine which lines must be removed or raised. Equipment should not come within 20 feet of existing overhead utility lines.</p> <ol style="list-style-type: none"> 1. Be prepared for sudden shifting when removing rod sections. Restrict non-essential personnel from approaching working area. 2. All personnel within the radius of the DPT rig must wear ANSI approved hard hats. 3. Clear trees, roots, weeds, limbs and other ground hazards from the location. Practice good housekeeping to keep the ground around the site clear of obstructions, equipment and other tripping hazards. Wear appropriate foot protection to prevent slips and trips. Use caution when working on uneven and wet ground surfaces. Keep a wide base and assure secure footing while attempting to handler auger flights and tooling. 4. When handling auger flights and tools, wear cut-resistant heavy cotton or leather work gloves when handling items with sharp or rough edges. 5. 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 	L
Hand augering	<ol style="list-style-type: none"> 1. MEC/UXO Hazards 	<ol style="list-style-type: none"> 1. MEC/UXO operations will be conducted by trained UXO Technicians. All Non-UXO personnel will be clear of the area during initial sweeps and anomaly investigation operations. Magnetometers will be tested using inert UXO/surrogates similar in size to the suspected target anomalies. Any MEC/UXO items on the surface and near surface will be flagged for UXO avoidance. UXO Technicians will clear vehicle and foot travel paths within the area in order to move up support personnel and equipment. Once this is completed, grid/transect clearance of the area of concern will be conducted. If MEC/UXO is observed, the UXO Technician making the observation will signal to stop operations. 2. The MEC/UXO will be inspected by the UXO Technician and if 	M

JOB STEPS	HAZARDS	CONTROLS	RAC
		<p>determined to be munitions scrap or munitions debris by the UXO Technician, the munitions scrap or munitions debris identification and location will be recorded in the logbook. Munitions scrap and munitions debris will be flagged for UXO Avoidance. No munitions scrap or munitions debris will be moved during the SI activities.</p> <p>3. Any MEC/UXO item discovered during the UXO Surface Sweep operations will be flagged for UXO avoidance and left in place. No MEC/UXO items will be moved during this operation. All MEC/UXO items discovered will be reported to the Navy POC.</p> <p>4. An inventory will be maintained by the UXO Team Leader with location and description (provided that information can be obtained without moving the item) for all MEC/UXO discovered during this operation, and the Navy POC will be provided an update about the inventory on a daily basis.</p>	
	<ol style="list-style-type: none"> Muscle strains, tendon or ligament sprains, back or soft-tissue injuries, bruises, abrasions or cuts from handling or operating the hand auger. 	<ol style="list-style-type: none"> Only workers who can physically perform this activity without injury should participate in operating a hand auger Perform simple stretches prior to beginning the task Ensuring that the hand auger is maintained in effective working order Stop if strong resistance is encountered such as impassable rocky conditions Get assistance when needed; and wearing appropriate PPE (work gloves, steel toe shoes, and safety impact eye protection) 	L
Multi-media Sampling	<ol style="list-style-type: none"> Chemical exposure 	<ol style="list-style-type: none"> Wear surgeons gloves when handling potentially-contaminated media 	L

JOB STEPS	HAZARDS	CONTROLS	RAC
	to TNT, RDX and lead.	<p>and samples, avoid contact with potentially-contaminated 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: Inhalation exposure concerns are an anticipated hazard. Exposure via dermal contact and ingestion represent some limited concern during this task.</p> <p>2. Exposure via inhalation, dermal contact and ingestion represent some limited concern during this task. If elevated particulate readings are observed above the PEL of 15 mg/m³, the SSO shall monitor the workers' BZ areas with the dust monitor.</p> <p>If elevated readings are observed above the PEL of 15 mg/m³, the SSO shall monitor the workers' BZ areas with the dust monitor. If elevated readings are observed, the following process will be followed:</p> <p>3. The SSO shall order site personnel to stop work and retreat upwind to a safe, unaffected area, where they will remain until further directed by the SSO.</p> <p>4. The SSO shall begin wetting procedures to control dust and then re-approach the work area while continuously monitoring the BZ areas.</p> <p>5. Only when levels are below the PEL standard in BZ areas will work be permitted to resume.</p> <p>6. If background levels are not regained, the SSO will contact the HSM for additional direction.</p> <ul style="list-style-type: none"> • Workers can only be exposed to lead at concentrations less than 50 micrograms per cubic meter of air averaged over an 8-hour period. 	L
	3. Slips/Trips/Fall Hazards	<ol style="list-style-type: none"> 1. Maintain clear walking working areas and good housekeeping to the extent possible. 2. Debris and rutted areas create tripping hazards. As part of the initial site preparation, these hazards will be eliminated if possible, or pointed out by the UXO Technicians if not possible. 3. Personnel will return the site to a neat and orderly condition prior to leaving the site. 4. All exit and access pathways will be maintained free of obstructions. 5. If excavation holes are to be left open overnight, they will be barricaded. 	L
	4. Cuts and lacerations – when cutting	<ol style="list-style-type: none"> 1. Always cut away from yourself and others. 2. Do not place items to be cut in your hand or on your knee. 	L

JOB STEPS	HAZARDS	CONTROLS	RAC
	acetate liners without the proper material handling devices.	<ol style="list-style-type: none"> 3. Change blades as necessary to maintain a sharp cutting edge as many accidents result dull cutting attachments. 4. Wear cut-resistant gloves (leather or heavy cotton) at least on the non-knife/saw hand, where possible. 5. When cutting acetate liners use the tubing retention tub to secure the tube. 6. Use the knife intended for that purpose. Geoprobe® makes a kit for this purpose. 	
5. Strains/sprains from heavy or improper lifting	5. Strains/sprains from heavy or improper lifting	<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, lift with legs not back, obtain help when needed to lift large, bulky, or heavy items). 	L
XRF operation	<ol style="list-style-type: none"> 1. Ionizing radiation 	<ol style="list-style-type: none"> 1. The area where the device will be used will be identified using signs warning persons entering the area of the activities being conducted. 2. The operator will ensure persons not critical to the operation are not in the area posted for this purpose. 3. The operator will ensure good general housekeeping is practiced in the analytical area to control potential contamination. 4. The operator will practice good work hygiene practices to minimize potential introduction of residual contamination into the body through hand to mouth contact. 5. Keep all safe guards and warning labels in place 6. The location of storage and use should be of restricted access to limit potential exposure to possible ionizing radiation. 	L
	<ol style="list-style-type: none"> 2. Electrical shock and/or battery explosion 	<ol style="list-style-type: none"> 1. Plug the battery charger into a grounded electrical outlet that is easily accessible at all times. 2. When unplugging the cord form the electrical outlet, grasp and pull the cord by the plug. 3. Handle battery packs properly by manufacturers guidelines 4. Only expose a battery pack to temperatures lower than 140 °F (60 °C). 5. Improper handling or charging a battery pack may cause the battery to explode. 	L

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
DPT Rig, acetate cutting device	Visual inspection prior to	Review of AHA during pre-task tailgate safety briefing with all intended task

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
<p>and sharp knives, hand tools (dollies, hand carts, etc.) PID or FID, magnetometer, XRF monitor. MiniRam dust monitor</p>	<p>use by user. Mini-Ram Dust Monitor must be calibrated as per the manufacturer's recommendations and documented on each use.</p>	<p>participants.</p>
<p>Personal Protective Equipment: Minimum: Boot covers, safety toe boots, (if steel toe footwear cannot be worn because of interferences with UXO detection devices, safety impact footwear with non-metallic toe protection that meet ANSI Z-41 requirements shall be used. Safety glasses. Optional items: Hardhat, hearing protection. HTRW: nitrile surgeon's style gloves and Tyvek if there is a change to soil clothing.</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

Overall Risk Assessment Code (RAC) (Use highest code)		Risk Assessment Code (RAC) Matrix					L
Severity	Probability					Unlikely	
	Frequent	Likely	Occasional	Seldom			
Catastrophic	E	H	H	H	H	M	
Critical	E	H	H	M	M	L	
Marginal	H	M	M	L	L	L	
Negligible	M	L	L	L	L	L	
<p>Step 1: Review each "Hazard" with identified safety "Controls" and determine RAC (See above)</p> <p>"Probability" is the likelihood to cause an incident, near miss, or accident and Identified as: Frequent, Likely, Occasional, Seldom, or Unlikely.</p> <p>"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible</p> <p>Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.</p>							
		CONTROLS					RAC
Personal and sampling equipment decontamination	<ol style="list-style-type: none"> Clear intended decon area location of 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 surfaces 					L	
Decontamination of heavy equipment and large tooling (e.g., vehicles, etc.) using pressure washer	<ol style="list-style-type: none"> 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. Wash and rinse reusable items, dispose of non-reusable items Place in a secure location to dry 					L	
	<ol style="list-style-type: none"> Pressure washer operator must wear hearing protection (muffs or plugs with NRR of at least 25 dB) Restrict other personnel from decon pad during pressure washing operations. Pressure washer operator must exercise care when directing the wand so that it is not pointing at himself/herself or at any other worker. Pressure washer operator must wear full face shield over safety glasses with side shields and brow protection. At SSO discretion, additional PPE consisting of hardhat, rainsuit, apron, and or boot covers may be required during heavy equipment decon operations - depending on observations indicating that significant contact with decon overspray and/or windy conditions during washing activities. 					L	

JOB STEPS	HAZARDS	CONTROLS	RAC
<p>3. Falling objects</p> <p>4. Strains/sprains from heavy lifting</p> <p>5. Slips/trips/falls</p> <p>6. Exposure to contaminated media</p>	<p>3. Place items to be decontaminated on ground or on washing/drying racks in a manner that they are secure and will not fall. Wear safety toe safety footwear.</p> <p>4. 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).</p> <p>5. Keep decon areas orderly, maintain good housekeeping, spread light coating of sand on decon pad liner to increase traction.</p> <p>6. 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.</p>		
<p>EQUIPMENT</p>	<p>INSPECTION</p>	<p>TRAINING</p>	
<p>Hand tools (hand brushes, garden sprayers, etc.)</p>	<p>Visual inspection prior to use by user. Check wooden handles for cracks or splinters.</p>	<p>None required.</p>	
<p>Pressure washer</p>	<p>Inspect pressure washer prior to putting into service to ensure that it is in good working order, and ensure that fittings are secure.</p>	<p>Review manufacturer's instructions and safety guidelines prior to use.</p>	
<p>Personal Protective Equipment: Minimum: Safety toe boots, safety glasses Optional items: Hardhat, hearing protection. HTRW: 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</p>	<p>Initial PPE inspection performed by SSO. 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</p>	

EQUIPMENT	INSPECTION	TRAINING
be avoided, rain suit or moisture-repellant disposable coveralls may be specified by the SSO.		confirmed by visual observations of worker activities.

I have read and understand this AHA:

Name (Printed)	Signature	Date

Overall Risk Assessment Code (RAC) (Use highest code)		Risk Assessment Code (RAC) Matrix					L
Severity		Probability					
Catastrophic		Frequent	Likely	Occasional	Seldom	Unlikely	
Critical		E	H	H	H	M	
Marginal		E	H	H	M	L	
Negligible		H	M	M	L	L	
		M	L	L	L	L	
Activity/Work Task: Investigative Derived Waste (IDW) Management Project Location: SWMU 3, NSA Crane Contract Number: W912BU-13-D-0010 Date Prepared: May 10, 2011 Revised: May 8, 2014 Prepared by: J. Laffey, CESCO Reviewed by: R. Brooks Notes: (Field Notes, Review Comments, etc.)		Step 1: Review each "Hazard" with identified safety "Controls" and determine RAC (See above) "Probability" is the likelihood to cause an incident, near miss, or accident and Identified as: Frequent, Likely, Occasional, Seldom, or Unlikely. "Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.					RAC Chart
		CONTROLS					
JOB STEPS Filling, moving 55-gallon drums of IDW	HAZARDS						RAC
	1. Heavy lifting	1. Practice safe lifting techniques (use mechanical lifting devices such as a dolly whenever possible, 2. Ensure clear path of travel 3. Have a good grasp on object 4. Perform "test lift" to gauge ability to safely make the lift 5. Lift with legs not back 6. Obtain help when needed to lift large, bulky, or heavy items.					L
	2. Struck by/pinches compressions	1. Exercise caution when handling drums. 2. Position drums so that there is adequate room between them for placement and repositioning.					L
	3. Falling objects (drums)	1. Do not stack drums on top of each other. 2. Do not place more than 4 drums to a pallet. 3. Leave at least 4 feet of clearance between pallets for clear access.					L
	4. Slips, Trips, Falls	1. Maintain good housekeeping in IDW storage areas, keeping it clear of loose debris and other potential tripping hazards. 2. Wear appropriate foot protection to prevent slips and trips. 3. Use caution when working on uneven and wet ground surfaces.					L
5. Foot hazards	1. Safety toe foot protection will be required for IDW container handling activities.					L	
5. Minor contusions, abrasions, cuts	1. Wear cut-resistant gloves when handling items with sharp or rough edges.					L	

EQUIPMENT	INSPECTION	TRAINING
<p>Hand tools (drum dollies, wrenches, etc.)</p> <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., surgeon's nitrile gloves under leather/cotton work gloves)</p> <p>HTRW: metals in groundwater</p>	<p>Visual inspection prior to use by user. Check wooden handles for cracks or splinters.</p> <p>Initial PPE inspection performed by FOL/SSO. Ongoing (prior to each use) inspections responsibilities of PPE users.</p>	<p>All personnel participating in this activity must be current with HAZWOPER training requirements.</p> <p>Initial site specific H&S training to cover review of the APP. Daily tail-gate and pre-task briefings to review appropriate AHAs and other relevant topics.</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 FOL/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

11.0 REFERENCES, MATERIALS AND DOCUMENTATION

United States Army Corps of Engineers (USACE). 15 December 2008. Engineer Manual (EM) 385-1-1, Safety and Health Requirements Manual.

Available online at: <http://www.usace.army.mil/inet/usace-docs/eng-manuals/em385-1-1/entire.pdf>

The Tetra Tech FOL/SSO shall ensure the following materials/documents are taken to the project site and used when required. The following documentation is to be posted or maintained at the site for quick reference purposes. For this project, the items so noted below will be maintained in the Tetra Tech work vehicle.

Chemical Inventory Listing (posted) - This list represents the chemicals brought onsite, including decontamination solutions, sample preservations, fuel, etc. This list will be maintained in the Tetra Tech Work Trailer.

Material Safety Data Sheets/Safety Data Sheets (MSDS/SDSs) (maintained) - The MSDS/SDSs will be maintained in the Tetra Tech Work trailer. These documents should match the listings on the chemical inventory list for substances used onsite. It is acceptable to have these documents within a central folder and the chemical inventory as the table of contents.

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

Site Clearance (maintained) - This list is found within the training section of the APP. This list identifies site personnel, dates of training (including site-specific training), and medical surveillance. The list indicates not only clearance but also status. If personnel do not meet these requirements, they do not enter the site while site personnel are engaged in activities. This list will be maintained in a vehicle onsite during operations.

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

Medical Data Sheets/Cards (maintained) - Medical Data Sheets will be completed by onsite personnel and filed in the Tetra Tech Work Trailer. The Medical Data Sheet will accompany any injury or illness requiring medical attention to the medical facility. A copy of this sheet or a wallet card will be given to personnel to carry at times.

Hearing Conservation Standard (29 CFR 1910.95) (posted) - This standard will be posted any time hearing protection or other noise abatement procedures are used.

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

FIGURES

FIGURE 3-1

OSHA's Form 300A (REV. 01/2004)

Summary of Work-Related Injuries and Illnesses

All establishments covered by Part 1904 must complete the Summary page, even if no injuries or illnesses occurred during the year. Remember to review the Log to verify that the entries are complete. Using the Log, count the individual entries you made for each category. Then enter the totals below, making sure you've added the entries from every page of the log. If you had no cases write "0".

Employees former employees, and their representatives have the right to review the OSHA Form 300 in its entirety. They also have limited access to the OSHA Form 301 or its equivalent. See 29 CFR 1904.35, in OSHA's Recordkeeping rule, for further details on the access provisions for these forms.

Number of Cases

Total number of deaths	0	(G)	Total number of cases with days away from work	17	(H)	Total number of cases with job transfer or restriction	12	(I)	Total number of cases other recordable cases	39	(J)
------------------------	---	-----	--	----	-----	--	----	-----	--	----	-----

Number of Days

Total number of days away from work	837	(K)	Total number of days of job transfer or restriction	674	(L)
-------------------------------------	-----	-----	---	-----	-----

Injury and Illness Types

Total number of:	
(1) Injury	63
(2) Skin Disorder	1
(3) Respiratory Condition	1
(4) Poisoning	0
(5) Hearing Loss	0
(6) All Other Illnesses	3

Post this Summary page from February 1 to April 30 of the year following the year covered by the form

Before you tick the box at the top left of this page, you must first review the Log to verify that the entries are complete. If you find any missing or incorrect entries, you must correct them before you tick the box. If you find any missing or incorrect entries, you must correct them before you tick the box. If you find any missing or incorrect entries, you must correct them before you tick the box.

Establishment Information

Your establishment name: Tetra Tech - All Employees
 Street: 3475 East 10th St
 City: Pasadena State: CA Zip: 91107
 Industry description (e.g., Manufacturer of motor vehicles):
Environmental Consulting Services
 Standard Industrial Classification (SIC), if known (e.g., 3713):
OR North American Industrial Classification (NAICS), if known (e.g., 336312):
8 6 1 R 2 0

Employment Information

Annual average number of employees: 11730
 Total hours worked by all employees YTD November 2011: 23,725,239

Sign here: _____
 Title: _____
 Company address: 539 201 49th
 City: _____ State: _____ Zip: _____
 Date: _____

Knowing/Labeling this document may result in a fine.
 I certify that I have examined this document and that to the best of my knowledge the entries are true, accurate, and complete.

OSHA's Form 300A (Rev. 01/2004)

Summary of Work-Related Injuries and Illnesses

All establishments covered by Part 1904 must complete this Summary page, even if no injuries or illnesses occurred during the year. Remember to review the Log to verify that the entries are accurate. Using the Log, count the individual entries you made for each category. Then write the totals below, making sure you've added the entries from every page of the Log. If you had no cases write "0".

Employees former employees, and their representatives have the right to review the OSHA Form 300 in its entirety. They also have limited access to the OSHA Form 301 or its equivalent. See 29 CFR 1904.35, in OSHA's Recordkeeping rule, for further details on the access provisions for these forms.

Number of Cases

Total number of deaths	0 (G)	Total number of cases with days away from work	13 (H)	Total number of cases with job transfer or restriction	21 (I)	Total number of other recordable cases	50 (J)
------------------------	-------	--	--------	--	--------	--	--------

Number of Days

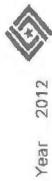
Total number of days away from work	707 (K)	Total number of days of job transfer or restriction	915 (L)
-------------------------------------	---------	---	---------

Injury and Illness Types

Total number of (M)	(1) Injury	77	(4) Poisoning	0
(2) Skin Disorder	5	(5) Hearing Loss	0	
(3) Respiratory Condition	0	(6) All Other Injuries	2	

Post this Summary page from February 1 to April 30 of the year following the year covered by the form.

People who are not covered by this form should not be included in the statistics. Do not include cases that are not work-related, such as those that occur during the employee's commute to or from work, or those that occur during the employee's regular commute to or from work. Do not include cases that are not work-related, such as those that occur during the employee's regular commute to or from work. Do not include cases that are not work-related, such as those that occur during the employee's regular commute to or from work.



Year 2012

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

Form approved OHS 00 12 8 0106

Establishment Information

Your establishment name Tata Tech Inc.
 Street 3075 East Foothill Boulevard City Pasadena State CA Zip 91107
 Industry description (e.g., Manufacturer of motor truck trailers)
Environmental Consulting Services
 Standard Industrial Classification (SIC), if known (e.g., SIC 37131)
OR North American Industrial Classification (NAICS), if known (e.g., NAICS
5-4-1-8-2-0)

Employment Information

Annual average number of employees 172411
 Total hours worked by all employees (in year) 24,004,295

Sign here _____
 Knowingly falsifying this document may result in a fine.

I certify that I have examined this document and that to the best of my knowledge the entries are true, accurate, and complete.

 Company executive
 Title VP Corporate HRD
 Date January 31, 2013

618 301 5014
 Name _____

OSHA's Form 300A (Rev. 01/2004)

Summary of Work-Related Injuries and Illnesses

All establishments covered by Part 1904 must complete this Summary page, even if no injuries or illnesses occurred during the year. Remember to review the Log to verify that the entries are complete. Using the Log, count the individual entries you need for each category. Then enter the totals below, leaving any space above the entries from a previous year. If you had no cases enter "0".

Employees (other employees, and their representatives have the right to review the OSHA Form 300 in its entirety. They also have limited access to the OSHA Form 307 or its equivalent. See 29 CFR 1904.35 in OSHA's Recordkeeping rule for further details on the access provisions for these forms.

Number of Cases

Total number of deaths	Total number of cases with days away from work	Total number of cases with job transfer or restriction	Total number of other recordable cases
0	19	13	54
(G)	(H)	(I)	(J)

Number of Days

Total number of days away from work	Total number of days of job transfer or restriction
617	585
(K)	(L)

Injury and Illness Types

Total number of...	(1) Injury	(2) Skin Disorder	(3) Respiratory Condition	(4) Poisoning	(5) Hearing Loss	(6) All Other Illnesses
(M)	77	5	0	0	0	4

Post this Summary page from February 1 to April 30 of the year following the year covered by the form.

Public reporting burden for this collection of information is estimated to average 25 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering the data, reviewing the collection of information, collecting the data, reviewing the collection of information, and completing the review of information. For more information on this collection of information, contact the Office of Management and Budget, Paperwork Project Director (202) 391-2262. Send comments about this collection of information, including suggestions for reducing the burden, to Washington Headquarters Service, Directorate for Information Operations and Reports, (202) 391-2262. Do not send comments to the Department of Labor, OSHA, Office of Statistics, Room N-3344, 201 Constitution Ave. NW, Washington, DC 20210. Do not send comments to the Office of Management and Budget, Paperwork Project Director, (202) 391-2262.



Year 2013

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

Form approved OMB no. 1218-0176

Establishment Information

Your establishment name: Fast Track, Inc. (HUNTSVILLE, AL)
 Street: 3075 East Foothill Blvd.
 City: Fayetteville State: Ark. Zip: 37212

Industry description (e.g., Manufacturer of motor truck trailers):
Environmental Consulting Services

Standard Industrial Classification (SIC), if known (e.g., S-C 3713):
8111

OSHA North American Industry Classification (NAICS), if known (e.g., 238210):
8111

Employment Information

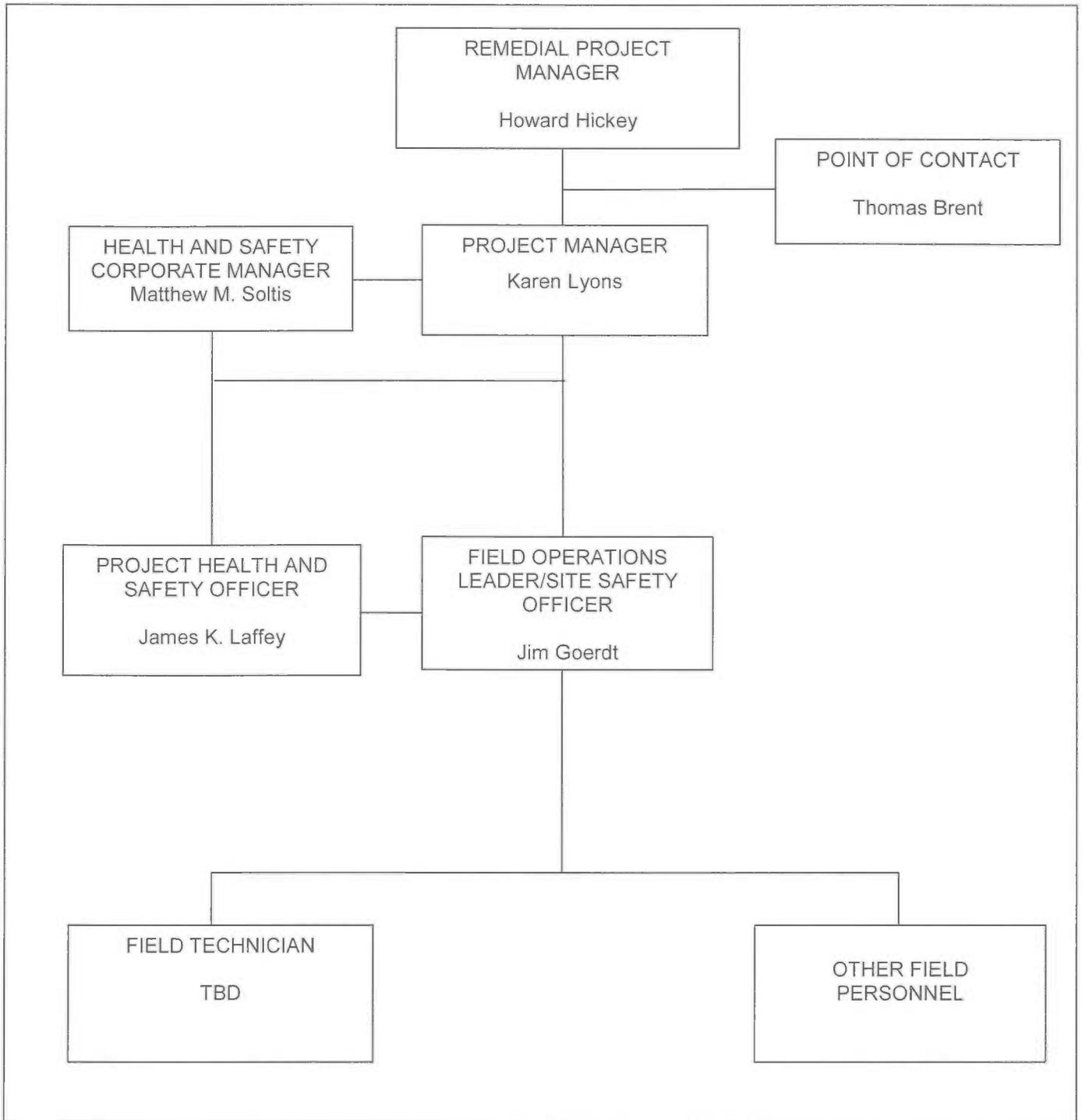
Annual average number of employees: 13,120
 Total hours worked by all employees last year: 54,811,840

Sign here: _____
 I hereby certify that the information furnished on this form is true and correct to the best of my knowledge and belief, and that I am a duly authorized signatory for this purpose.

Company name: _____
 Title: VP, Corp. HR

OSHA 300A (2013) Date: 2/16/14

FIGURE 4-1
ORGANIZATION CHART
FIELD ACTIVITIES AT SWMU 3



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/>		
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/Number		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:				

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

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? <input type="checkbox"/> TetraTech subcontractor employee (directly supervised by Tt personnel)? <input type="checkbox"/>	
Full Name	Company (if not Tt employee)
Street Address, City, State and Zip Code	
Address Type	
Home address (for Tt employees) <input type="checkbox"/>	
Business address (for subcontractors) <input type="checkbox"/>	
Telephone Numbers	
Work: _____	Home: _____
Cell: _____	
Occupation (regular job title)	Department
Was the individual performing regular job duties?	
Yes <input type="checkbox"/> No <input type="checkbox"/>	
Time individual began work	
_____ AM <input type="checkbox"/> PM <input type="checkbox"/> OR Cannot be determined <input type="checkbox"/>	
Safety equipment	
Provided? Yes <input type="checkbox"/> No <input type="checkbox"/>	Type(s) provided: <input type="checkbox"/> Hard hat <input type="checkbox"/> Protective clothing
Used? Yes <input type="checkbox"/> No <input type="checkbox"/> If no, explain why	<input type="checkbox"/> Gloves <input type="checkbox"/> High visibility vest
	<input type="checkbox"/> Eye protection <input type="checkbox"/> Fall protection
	<input type="checkbox"/> Safety shoes <input type="checkbox"/> Machine guarding
	<input type="checkbox"/> Respirator <input type="checkbox"/> 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 <input type="checkbox"/> No <input type="checkbox"/>
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 <input type="checkbox"/> No <input type="checkbox"/> If yes, request a copy of their completed investigation form/report and attach it to this report.	



INJURY / ILLNESS DETAILS

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

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

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

MEDICAL CARE PROVIDED

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

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

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

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

SIGNATURES

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

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

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



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

Incident Report Number: (From the IR Form)			
TYPE OF INCIDENT (Check all that apply)			
Property Damage <input type="checkbox"/>	Equipment Damage <input type="checkbox"/>	Fire or Explosion <input type="checkbox"/> Spill or Release <input type="checkbox"/>	
INCIDENT DETAILS			
Results of Incident: Fully describe damages, losses, etc.			

Response Actions Taken:			

Responding Agency(s) (i.e. police, fire department, etc.)	Agency(s) Contact Name(s)		
_____	_____		
DAMAGED ITEMS (List all damaged items, extent of damage and estimated repair cost)			
Item:	Extent of damage:	Estimated repair cost	
_____	_____	_____	
_____	_____	_____	
_____	_____	_____	
SPILLS / RELEASES (Provide information for spilled/released materials)			
Substance	Estimated quantity and duration	Specify Reportable Quantity (RQ)	
_____	_____	_____ Exceeded? Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>	
FIRES / EXPLOSIONS (Provide information related to fires/explosions)			
Firefighting equipment used? Yes <input type="checkbox"/> No <input type="checkbox"/> If yes, type of equipment: _____			

NOTIFICATIONS			
Required notifications	Name of person notified	By whom	Date / Time
Client: _____ Yes <input type="checkbox"/> No <input type="checkbox"/>			
Agency: _____ Yes <input type="checkbox"/> No <input type="checkbox"/>			
Other: _____ Yes <input type="checkbox"/> No <input type="checkbox"/>			
Who is responsible for reporting incident to outside agency(s)? Tt <input type="checkbox"/> Client <input type="checkbox"/> Other <input type="checkbox"/> Name: _____			
Was an additional written report on this incident generated? Yes <input type="checkbox"/> No <input type="checkbox"/> If yes, place in project file.			

INSTRUCTIONS:			
Complete all sections below for incidents involving motor vehicle accidents. Do NOT leave any blanks. Attach this form to the IR FORM completed for this incident.			
Incident Report Number: (From the IR Form)			
INCIDENT DETAILS			
Name of road, street, highway or location where accident occurred		Name of intersecting road, street or highway if applicable	
County	City	State	
Did police respond to the accident?		Did ambulance respond to the accident?	
Yes <input type="checkbox"/> No <input type="checkbox"/>		Yes <input type="checkbox"/> No <input type="checkbox"/>	
Name and location of responding police department		Ambulance company name and location	
Officer's name/badge #			
Did police complete an incident report? Yes <input type="checkbox"/> No <input type="checkbox"/> If yes, police report number: _____			
Request a copy of completed investigation report and attach to this form.			
VEHICLE INFORMATION			
How many vehicles were involved in the accident? _____ (Attach additional sheets as applicable for accidents involving more than 2 vehicles.)			
Vehicle Number 1 – Tetra Tech Vehicle		Vehicle Number 2 – Other Vehicle	
Vehicle Owner / Contact Information		Vehicle Owner / Contact Information	
Color		Color	
Make		Make	
Model		Model	
Year		Year	
License Plate #		License Plate #	
Identification #		Identification #	
Describe damage to vehicle number 1		Describe damage to vehicle number 2	
Insurance Company Name and Address		Insurance Company Name and Address	
Agent Name		Agent Name	
Agent Phone No.		Agent Phone No.	
Policy Number		Policy Number	

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

OTHER PROPERTY DAMAGE	
Describe damage to property other than motor vehicles	
Property Owner's Name	Property Owner's Address



TETRA TECH, INC.

Safety Excellence

FIGURE 8-1
TETRA TECH, INC.
INCIDENT FORM IR-C

COMPLETE AND SUBMIT DIAGRAM DEPICTING WHAT HAPPENED

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

FIGURE 9-1

FACILITY LOCATION MAP

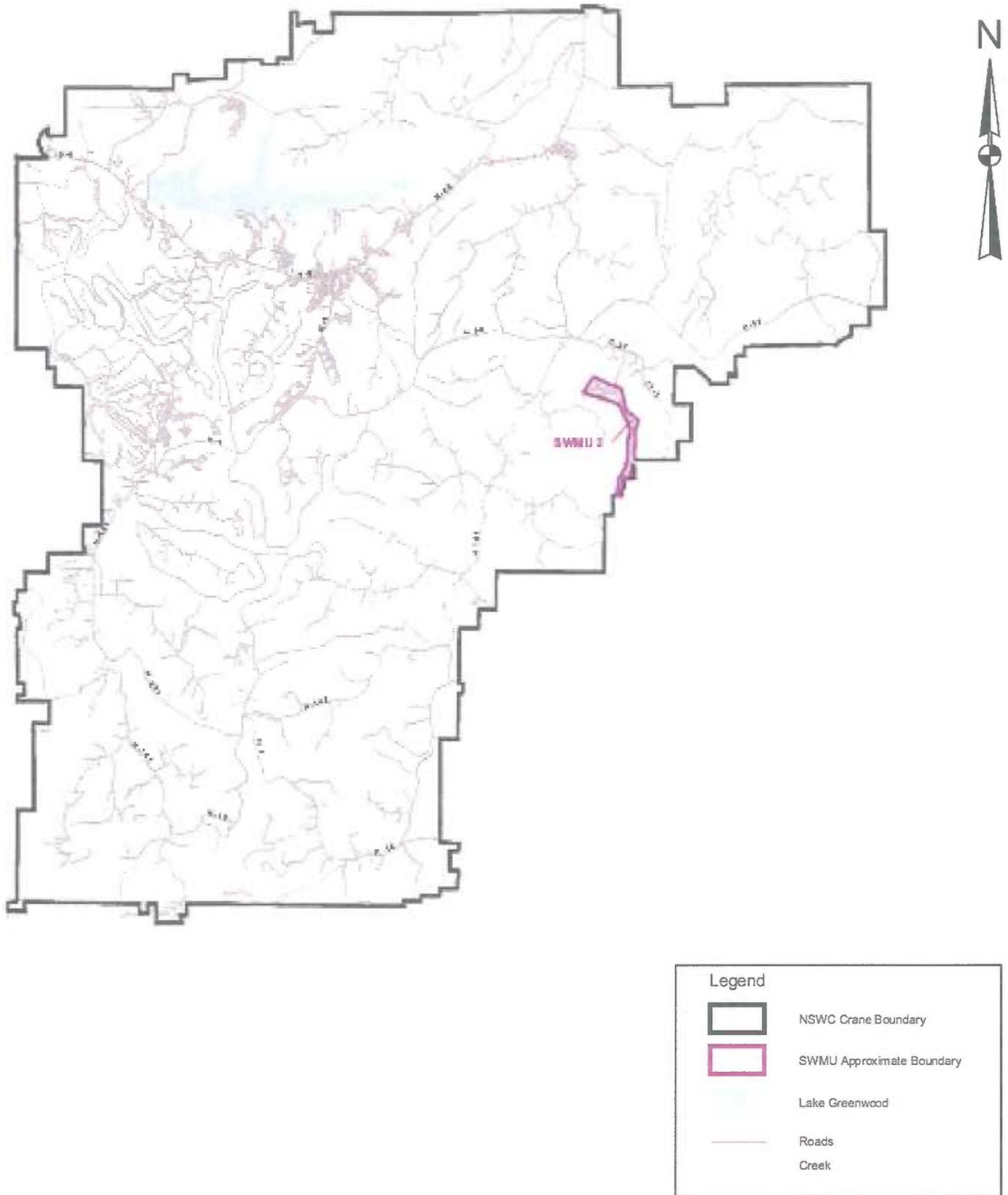


FIGURE 9-2

ROUTE TO HOSPITALS

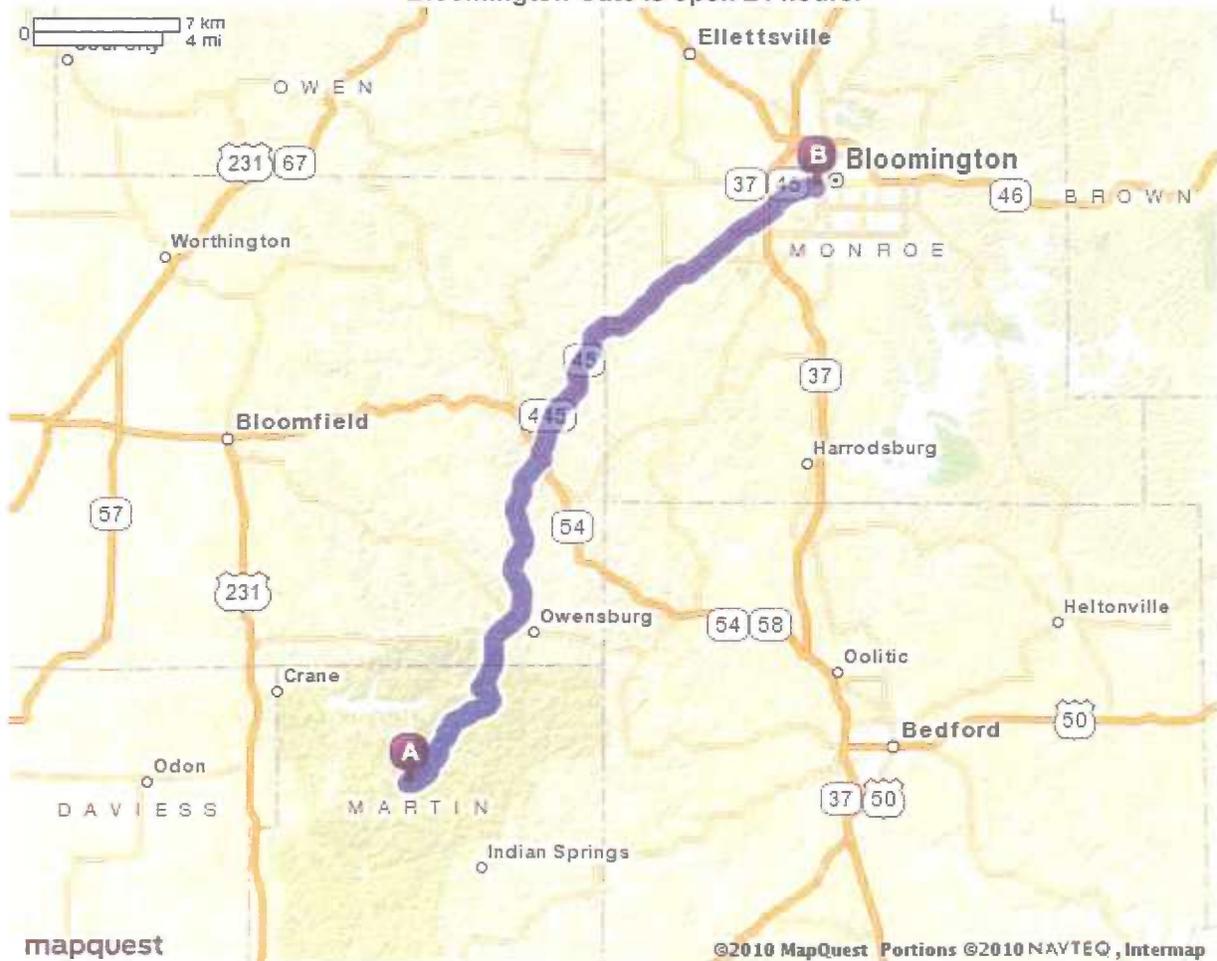
Bloomington Hospital 601 W. 2nd ST. Bloomington, Indiana 47402

30.63 miles - about 54 minutes

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

BLOOMINGTON HOSPITAL ROUTE MAP VIA BLOOMINGTON GATE

Bloomington Gate is open 24 hours.



IU Health Bedford 2900 16th Street Bedford, Indiana 47421

19.2 miles - about 40 minutes

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

MAP TO IU HEALTH BEDFORD ROUTE MAP VIA BEDFORD GATE

Bedford Gate is open from 0530 - 0730 and 1500 - 1730 hours Monday – Friday

Closed Saturday, Sunday, & Holiday.

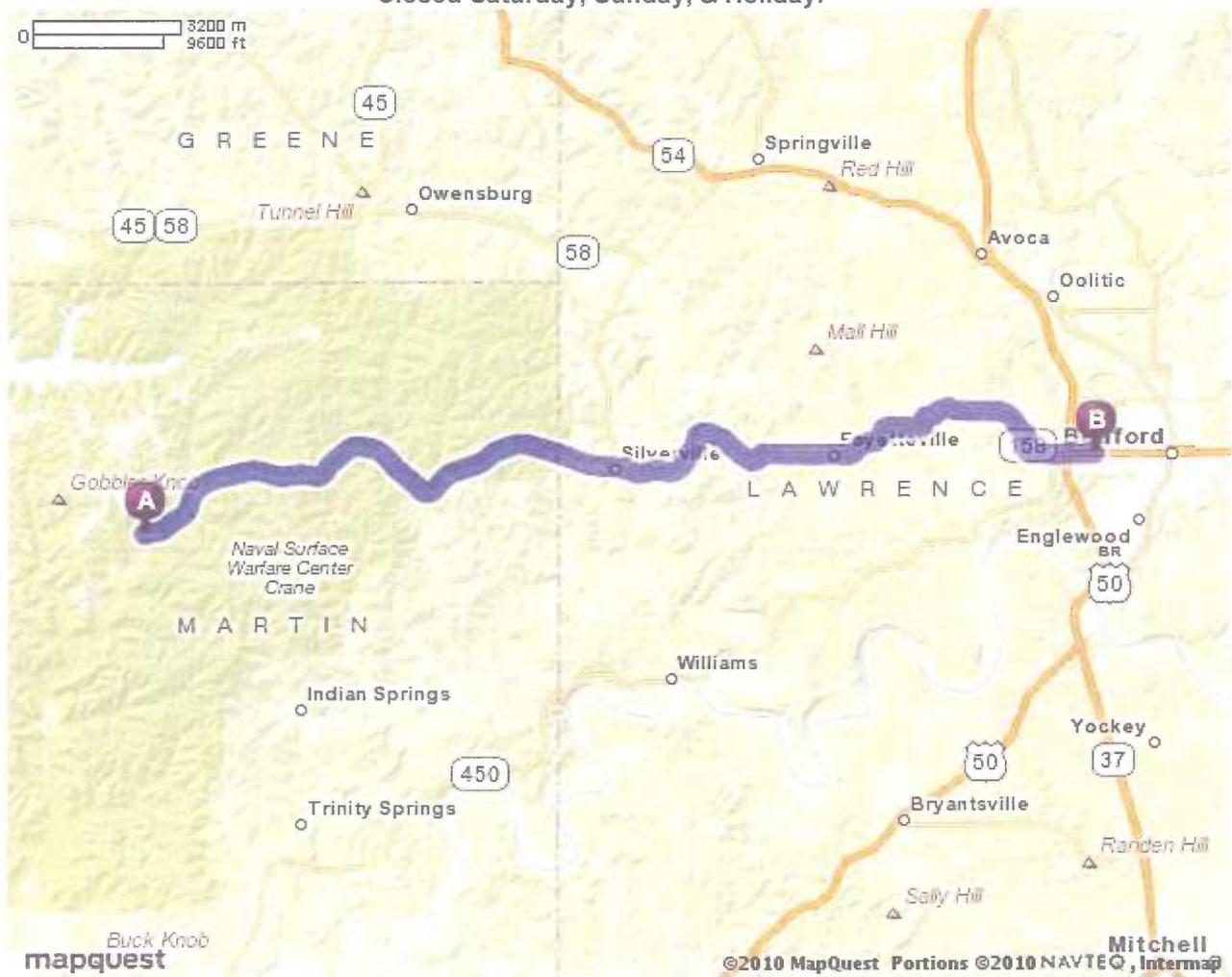


FIGURE 9-3

MEDICAL DATA SHEET

This Medical Data Sheet must be completed by on-site personnel and kept in a secured location or on your person during 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 _____

(Relationship): _____ Phone: _____

Drug or other Allergies: _____

Doctor Prescribed Antidotes: _____ Prescription Expiration date: _____

Particular Sensitivities (Previous Medical Conditions): _____

Do You Wear Contact Lenses? _____

What medications are you presently using? _____

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

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

HIPAA took effect in 1996 then was amended in June 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 may 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 access this form so it may 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

FIGURE 9-5

REQUIREMENTS FOR BASIC UNIT FIRST AID PACKAGES

Unit first aid item	Minimum Size or Volume (metric)	Minimum Size or Volume (US)	Item quantity per unit package	Unit package size
*Absorbent Compress	206 cm ²	32 in ²	1	1
* Adhesive Bandage	2.5 x 7.5 cm	1 x 3 in.	16	1
Antibiotic Treatment	0.9 g	1/32 oz.	6	1
* Adhesive Tape	457.2 cm	5 yd. (total)	1 or 2	1 or 2
* Antiseptic Swab.	0.5 g	0.14 fl. Oz.	10	1
Antiseptic Wipe	2.5 x 2.5 cm	1 x 1 in.	10	1
Antiseptic Towelette	157 cm ²	24 in.	10	1
Aspirin, Individually Wrapped	325 mg		2	2
Bandage Compress (2 in.).	5 x 91 cm	2 x 36 in.	4	1
Bandage Compress (3 in.)	7.5 x 152 cm	3 x 60 in.	2	1
Bandage Compress (4 in.).	10 x 183 cm	4 x 72 in.	1	1
Burn Dressing	10 x 10 cm	4 x 4 in.	1	1-2
* Burn Treatment	0.9	1/32 fl. oz.	6	1
CPR Barrier			1	1
Cold Pack	10 x 12.5 cm	4 x 5 in	1	1-2
Eye Covering, with means of attachment	19 cm ²	2.9 in ²	2	1
Eye Wash	30 ml	1 fl. Oz. total	1	2
Eye Wash & Covering, with means of attachment	30 ml total 19 cm ²	1 fl. oz. total 2.9 in ²	1 2	2
Gloves, latex free	XL	XL	1 pair	1
Gloves, latex free	L	L	1 pair	1
Roller Bandage (4 in.).	10 x 550 cm	4 in. x 6 yd.	1	1
Roller Bandage (2 in.) 2 1	5 x 550 cm	2 in. x 6 yd.	2	1
* Sterile pad	7.5 x 7.5 cm	3 x 3 in.	4	1
* Triangular Bandage	101 x 101 x 142 cm	40 x 40 x 56 in.	1	1

* Minimum mandatory contents for basic fill kit

ATTACHMENTS

ATTACHMENT I

**UNEXPLODED ORDNANCE AND CHEMICAL
WARFARE AGENTS
ACTIVITIES OPERATING PROCEDURES**



TETRA TECH

STANDARD OPERATING PROCEDURES

Number	HS-2.0	Page	1 of 15
Effective Date	01/2012	Revision	2
Applicability	Tetra Tech, Inc.		
Prepared	Earth Sciences Department		
Approved	J. Zimmerly		

Subject
 UNEXPLODED ORDNANCE AND CHEMICAL
 WARFARE AGENTS ACTIVITIES

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1.0 GENERAL

This Standard Operating Procedure (SOP) was prepared in accordance with applicable U.S. Army Corps of Engineers procedures and policies governing field activities requiring Unexploded Ordnance (UXO) and Chemical Warfare Material (CWM) operations. All personnel conducting operations under this SOP must read and understand applicable parts of references listed in paragraph 9.1 below prior to commencing any work described within this SOP. Other documents supporting this SOP include project-specific Work Plans and Health and Safety Plans which are prepared for the purpose of accomplishing work that contain a UXO or CWM component.

2.0 PURPOSE

This SOP applies to all operations involving UXO and/or CWM support during field operations at various sites where Tetra Tech NUS (TtNUS) personnel are present. It provides procedural requirements for any activity involving UXO and CWM, as well as detailed procedures for the location, identification, documentation, and emergency response actions pertaining to UXO/CWM activities.

3.0 APPLICABILITY

This SOP applies to persons who may visit any site where TtNUS is performing work that involve some UXO or CWM component. Compliance the content of this SOP is mandatory for all TtNUS personnel, subcontractors, and visitors to any site where UXO/CWM activities are in progress.

4.0 RESPONSIBILITIES

Project Manager

Effective implementation of this SOP at the project level will be the ultimate responsibility of the assigned TtNUS Project Manager. The Project Manager is responsible for ensuring that all applicable rules and regulations are complied with, and that all necessary safety precautions are taken to conduct operations in accordance with this SOP. To fulfill this responsibility, the assigned Project Manager is required to ensure that appropriately-qualified technical staff are involved in all stages of project planning and field work, as well as for ensuring that appropriate resources are marshaled and used on his/her assigned projects. For projects involving UXO and/or CWM, this will involve ensuring that a suitably qualified and experienced UXO technician and a site Health and Safety Officers are part of the project team. In some cases, the assigned UXO Technician may also serve as the project site Health and Safety Officer.

It is also the responsibility of the Project Manager to ensure that all personnel conducting field activities in accordance with this SOP have proper training (including hazard control briefings) and, if required, the proper certifications for the job being performed.

UXO Technician

A suitably qualified and experienced UXO Technician will be included as part of the project team where these types of concern are known or suspected to exist. The UXO Technician will be primarily responsible for advising the Project Manager on all UXO/CWM matters, including on the measures that will be necessary to effectively implement and adhere to this SOP. Other specific duties will include:

- Providing technical expertise and input into project planning activities and documents such as the project-specific Work Plan and Health and Safety Plan
- Clearing worksite areas of UXO/CWM concerns prior to the initiation of any other onsite activities

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- Participating in the development and conductance of site specific training sessions and daily tailgate meetings to communicate UXO/CWM matters to the field personnel
- Maintaining a sound familiarity with the contents of this SOP, the contents of the references listed in section 9.1, and keeping current with new information and technology pertinent to UXO/CWM matters

Site Health and Safety Officer

A suitably qualified and experienced health and safety professional will be assigned to all projects that involve fieldwork. Project-specific responsibilities will include:

- Effectively implementing the requirements and restrictions specified in the project-specific Health and Safety Plan
- Ensuring that all personnel participating in onsite activities have satisfied all appropriate medical and training qualifications prior to participating in any onsite intrusive activities.
- Conduct initial site-specific health and safety training for all personnel participating in onsite activities prior to their participation in any onsite intrusive activities.
- Conduct tail-gate safety briefings prior to the initiation of all tasks, but not less than daily.
- On certain projects, these duties may be assigned to the UXO Technician. This would be considered acceptable on field projects where the predominant concern is contact with UXO and/or CWM, and minimal health concerns or requirements (e.g., chemical exposures or monitoring) exist.

Corporate Health and Safety Manager

Perform periodic project audits and evaluations to determine the ongoing effectiveness of this SOP to address UXO/CWM concerns, and review and evaluate this SOP to determine any revisions that are appropriate.

5.0 LOCATION OF OPERATIONS

Activities where UXO and/or CWM concerns may exist may be encountered in support of various TtNUS contracts, with potential project sites located throughout the continental United States and abroad. Wherever the installation/site is located, it will be necessary to ensure that project planning activities include collecting available historical information that may be pertinent to these issues, as well as identifying and addressing contract/client-specific requirements and any location-specific requirements (e.g., State, local-level, or host-nation requirements). A detailed site description, discussion of known and/or suspected contamination sources, and results of previous studies will be provided to field personnel as part of their field mobilization and initial site-specific training activities.

The initial project evaluation must involve the performance of a preliminary risk assessment, including the investigation of probable contaminants, potential transport pathways, the identification of potential receptors, and a preliminary evaluation of human health and environmental concerns. Preliminary identification of applicable or relevant and appropriate requirements (ARARs) will also be made available to field personnel conducting activities at the installation.

6.0 PERSONNEL QUALIFICATIONS AND REQUIREMENTS

6.1 Personnel Qualifications: Qualifications of those personnel actively involved in UXO/CWM operations shall be as follows:

- a. UXO personnel shall be graduates of the U.S. Naval Explosive Ordnance Disposal (EOD) School, Indian Head, Maryland.
- b. The Senior UXO Supervisor (SUXOS) for the operation will have been awarded the Master EOD Badge and have served at least 15 years in military EOD assignments, of which more than 10 years were in a supervisory position.

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- c. UXO personnel are responsible for maintaining current status with training and medical surveillance requirements, as specified in the project-specific Health and Safety Plans and OSHA 29 CFR 1010.120, paragraphs (e) and (f).

6.2 Personnel Requirements: During any activity where the possibility that UXO and or CWM may be encountered (no matter how remote), the following requirements will be met:

- a. One UXO-qualified technician will be required to support each field team engaged in operations in areas that might contain UXO/CWM.
- b. One UXO-qualified technician will be present at the site during all activities to provide UXO/CWM support in the event their services are required.

7.0 PERSONNEL LIMITS

The activities to be conducted under most contracts will not normally be conducted in areas requiring maximum personnel limitations except for intrusive UXO activities. Work will not be permitted unless at least two persons are present in the work area. The provisions of 29 CFR 1910.120 concerning personnel qualifications and requirements will be followed while working on-site. Any additional personnel limitation requirements specified by the client or the project work location (e.g., state, local ordnance, host nation, etc.) will also be identified and adhered to at all times.

7.1 Personnel Limits for UXO Operations:

- a. UXO Avoidance Operations – Two UXO Technicians (one UXO Technician III and one UXO Technician II)
- b. UXO Intrusive Operations - Three UXO Technicians (one UXO Technician III and two UXO Technician II)

8.0 MATERIAL LIMITS

The properties and configurations of specific explosive materials are not addressed in this SOP. That level of detail is required to be addressed in project-specific Work Plans and Health and Safety Plans. This SOP must be maintained onsite along with these project-specific documents to aid in appropriate communication and implementation activities. Bulk liquids to be used for decontamination of equipment will be maintained in 2-gallon containers or less. Material Safety Data Sheets (MSDSs) will be kept on file in the TtNUS Command Post for any chemical substances brought to the project site by TtNUS and TtNUS subcontractor personnel. This is addressed in greater detail in section 5. of the TtNUS Health and Safety Guidance Manual.

9.0 SAFETY REQUIREMENTS

9.1 Referenced Safety Requirements: The safety requirements that apply to the UXO/CWM operations covered under this SOP are:

- a. OSHA 29 CFR 1910.120 and 1926.65 – Hazardous Waste Operations and Emergency Response (HAZWOPER). Available online at:
http://www.osha.gov/pls/oshaweb/owasrch.search_form?p_doc_type=STANDARDS&p_toc_level=0&p_keyvalue=OSHA_Std_toc.html

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- b. US Army Corps of Engineers Engineering Regulation 385-1-92, *Safety and Occupational Health Document Requirements for Hazardous, Toxic and Radioactive Waste (HTRW) and Ordnance and Explosive Waste (OE) Activities*.
- c. US Army Corps of Engineers Engineering Regulation (ER) 385-1-96, *Safety and Health Requirements*. Available on line at:
<http://www.usace.army.mil/publications/eng-manuals/em385-1-1/toc.htm>.
- d. US Army Corps of Engineers Engineering Pamphlet (EP) 1110-1-18, *Ordnance and Explosive (OE) Response*.
- e. US Army Corps of Engineers Engineering Pamphlet (EP) 75-1-2, *Unexploded Ordnance Support for Hazardous, Toxic and Radioactive Waste and Construction Activities*.
- f. US Army Corps of Engineers Engineering Pamphlet (EP) 75-1-3, *Chemical Warfare Material Response*.
- g. US Army Technical Manual 9-1300-206 (TM 9-1300-206), *Ammunition and Explosive Hazards*.
- h. Technical Manual 60A-1-1-31, *Explosive Ordnance Disposal Procedures, General Information on EOD Disposal Procedures*.

9.2 Specific Safety Requirements:

- a. All site operations will be suspended if any site worker encounters an item of suspected UXO/CWM. Site work will remain suspended until the item is inspected and cleared by the UXO Technician.
- b. All site operations will be suspended if so ordered by an authorized client representative (i.e., Installation Range Control and/or Safety Office).
- c. A minimum of two UXO-qualified technicians will be present during all UXO-related activities.
- d. Standard work practices as outlined in project-specific Health and Safety Plans and/or Work Plans will be observed.

9.3 Inherent UXO/CWM Hazards: UXO/CWM operations have inherent safety and health risks associated with the various field activities conducted. All planned activities will be conducted in accordance with the requirements of the references listed in Section 9.1 above, as safety is the primary consideration in all UXO/CWM activities. Every effort should be made to determine all hazards associated with the site through a thorough research of archives, past site/range uses, and any other available information. Some of the hazards to consider are:

- a. Propellant, Explosives, and Pyrotechnics (PEP)
- b. Depleted Uranium (DU)
- c. White Phosphorus (WP)
- d. Corrosive chemicals (acids and bases) and decontamination agents
- e. Toxic gases, liquids and solids
- f. Corroded and damaged containers, munitions bodies, drums, etc.
- g. Fuze conditions
- h. Etiological agents

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10.0 PERSONAL PROTECTIVE EQUIPMENT (PPE)

Task-specific PPE will be identified in project-specific Health and Safety Plans. Typical PPE for project sites where the principle concern is for UXO/CWM will include the items listed below. Items marked with an asterisk (*) will be available and will be used as specified in the Health and Safety Plan and/or as determined by the TtNUS Site Health and Safety Officer.

- a. Safety glasses
- b. Safety shoes (and protective over boots or steel-toed rubber boots). NOTE: During geophysical survey operations, the UXO technicians will not wear steel-toed boots as they interfere with the magnetometer survey; however, around heavy equipment and activities where foot and overhead hazards may exist, steel-toed boots and hard hats will be worn.
- c. Cotton clothing (with protective coveralls*)
- d. Gloves (type to be specified for each project task in the Health and Safety Plan and/or by the site Health and Safety Officer)
- e. Respiratory protection equipment* (29CFR1910.134)
- f. Hearing protection*
- g. Hard hats*

11.0 EMERGENCY RESPONSE AND CONTINGENCY PLANS

11. Emergency Contacts: The identification of (and means to communicate with) appropriate local emergency response agencies must be identified as part of project planning/mobilization activities, and these agencies must be contacted prior to the initiation of any onsite work. These initial communications must determine the capabilities of these agencies to respond to foreseeable emergency situations, their willingness to respond, and their locations/driving directions/phone numbers. These details must be specified in the project-specific Health and Safety Plan and posted in the site Command Center/Field office.

At a minimum, the names and means of communication (phone number, radio frequency, etc.) of the following parties must be included in the project-specific Emergency Contacts procedure:

- a. Local Emergency Fire Response that will respond (i.e., local Fire Department)
- b. Emergency Medical Assistance (Hospital, Emergency Room, and ambulance service that will respond)
- c. Installation Safety Office or other client safety/emergency response contact
- d. Installation EOD Office/Detachment
- e. Installation Environmental Office

The senior TtNUS managing employee onsite (Project Manager, Site Manager, Site Supervisor, Field Operations Leader) is responsible for initiating these calls in the event of an emergency where such support is needed. If the Project Manager is not onsite at the time of an emergency event, he/she must be added to the above list of contacts.

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In the event of an emergency, all site personnel will be evacuated to a predetermined location away from the work place. Emergency Response Planning will be addressed in the project-specific Health and Safety Plan and will be in accordance with either 29 CFR 1910.38(a) or 1910.120(l). TtNUS will utilize the Installations Base Fire Protection and Emergency Services in emergencies or potential emergencies.

11.2 Contingency Plans: The following contingency plans will be implemented:

- a. Pre-Planning – Upon arrival at the site/installation, the TtNUS Field Operations Leader (FOL) and/or the Site Safety Officer will meet with the Base or local Fire Protection Department, Base Security Personnel or local Police Department, and onsite and/or offsite Emergency services to notify them of the activities that are to be undertaken, when, and where. All site personnel will be required to follow established base/local emergency procedures and will rely on base/local services to handle emergency calls when needed.
- b. Emergency Escape Procedures and Assignments – Upon notification of a site emergency that requires evacuation, all site personnel will proceed to predetermined locations based on emergency location and wind direction. An alternate assembly point will be designated in case personnel cannot reach these locations without danger to their lives and health. These primary and alternate escape routes and meeting places will be designated during the daily hazard control briefing. Personnel will be trained to remain at the assembly points until directed to either resume work or to leave the site.
- c. Procedures to Account for Site Personnel – The site work force is typically small enough that accounting for personnel will not be a problem via visual head counting. On projects with larger field team sizes, roll calls will be taken using the daily sign in logs, logbook entries, or the tail-gate briefing sheets. Accounting for personnel will be the Field Operations Leader's responsibility.
- d. Rescue and Medical Duties – TtNUS personnel will not be authorized to participate in emergency rescue operations. Typical first aid response equipment that is to be on hand at a project site includes suitable first aid kit, an emergency eye wash station, and Class ABC fire extinguishers.
- e. Activation of Emergency Response Procedures - Should an emergency occur which requires the support of outside services, the appropriate contacts will be made by the senior TtNUS managing employee onsite (Project Manager, Site Manager, Site Supervisor, Field Operations Leader). A list of appropriate contacts will be posted at the Command Post. Cellular phones, land-line phones, or hand-held radios will be the primary means of communication.
- f. Airborne Chemical Release Contingency Plan –
 - (1) Chemical Release Monitoring – every member of the site team will be responsible for observing and reporting any gross chemical releases or conditions that could lead to releases. Air monitoring will be performed as described in the project-specific Work Plans and Health and Safety Plans.
 - (2) Responses to Measured Airborne Chemical Releases – the readings on monitoring instrumentation will be compared to the action levels specified in the project-specific Work Plans and Health and Safety Plans. The primary purpose of appropriate real-time monitoring instruments will be monitor worker breathing zone areas for the protection of employee health. The project-specific Health and Safety Plan will specify actions that are

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to be taken in the event that monitoring instrument readings indicate that detected concentrations may represent a health threat to onsite workers. Area and perimeter monitoring as well as sample screening activities may also be called for in the Work Plan or Health and Safety Plan, but these are secondary purposes for the use of these instruments.

Unless otherwise specified in a project-specific Health and Safety Plan, the following monitoring instrument action levels and response measures will be observed on UXO/CWA sites:

<u>Parameter</u>	<u>Action Level</u>
Total Organic Vapors	Any sustained level above background
Airborne particulates	Readings >2.5 mg/m ³
Flammable Vapors	10% of the Lower Explosive Limit (LEL)

If such levels are noted at site perimeters or adjacent to neighboring residential or commercial property, the TtNUS Field Operations Leader and/or the Site Safety Officer will notify the appropriate client or base contacts.

- g. Liquid Release Monitoring – All field team members will be responsible for observing and reporting any liquid chemical releases or conditions that could lead to a release. If field operations on site result in a release of liquid chemicals in the absence of vapors, field personnel will attempt to contain the liquid by means of berms constructed with available equipment. If the work team cannot control the spill, they will leave the area for the assembly point quickly, without panic. The TtNUS Field Operations Leader and/or the Site Safety Officer will notify the appropriate client/base contact. This is not considered to be a significant probability during operations. However, in the unlikely instance that it should occur, field personnel may effect these types of defensive efforts, providing that such a response does not appear to present a chemical overexposure or other personal health or safety threat.

12.0 TYPICAL CLIENT/FACILITY SAFETY POINTS OF CONTACT

The following positions are typically encountered on UXO/CWA projects. Communication and coordination with these positions should be implemented and maintained throughout all project activities (from pre-field operations planning through to project close-out).

- a. Installation Safety Management Office
- b. Installation Ordnance Officer and/or EOD Officer
- c. Installation Radiation Officer
- d. Installation Environmental Office

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13.0 TOOLS AND EQUIPMENT

Tools and equipment necessary to safely and effectively accomplish the objectives of a project will be detailed in the project-specific Work Plans and Health and Safety Plans. Items commonly required for UXO/CWM operations are presented below:

13.1 Personal Protective Equipment

- a. Respiratory Protective Equipment (i.e., air purifying or air supplied devices)
- b. Dermal (chemical resistant) protective equipment (e.g., coveralls, gloves, eye and face protection)
- c. Physical safety PPE (hard hats, hearing protection, safety glasses, safety shoes, etc.)

13.2 Air Monitoring Equipment

- a. Explosive/O₂ Meter (Combustible Gas Indicator)
- b. Direct reading Organic Vapor Analyzer (PID or FID)
- c. Direct reading particulate meter
- d. Radiation Survey Meters and TLD Badges

13.3 Geophysical/Hydrology Survey Instrumentation

- a. Magnetometers (Cesium Vapor, Schonstedt)
- b. Electromagnetic Terrain Conductivity Meter (EM-31)
- c. Time-Domain Electromagnetic All-Metals Detector (EM-61)
- d. Water Level Indicator/Recorder
- e. pH/Temperature/Conductivity Meter for water samples (Horiba, etc.)
- f. Survey Equipment (transit, tripod, level, etc.) as required

13.4 UXO Support Equipment

- a. Schonstedt Magnetic Locators (GA-52Cx or equivalent passive instrument) will be used for UXO surface survey during UXO activities. The GA-52Cx detects the magnetic field of any ferromagnetic object.
- b. Schonstedt MG-220 Magnetic Gradiometer (Down-Hole Magnetometer or equivalent will be used to conduct down hole UXO checks. The MG-220 detects the magnetic field of any ferromagnetic object as it is lowered into a borehole.
- c. Marking tape, pin flags, stakes, utility spray paints, etc.

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13.5 CWM Support Equipment

- a. Chemical Agent Identification Kits (M18A2 Kit)
- b. ICAMs (Individual Chemical Agent Monitor)

13.6 Decontamination Equipment

As required by the level of protection for each site. See Site Health and Safety Plan for specifics.

13.7 Hand Tools/ Miscellaneous Equipment

As may be required.

14.0 ENVIRONMENTAL CONCERNS

The field operations covered by this SOP will be performed in such a manner as to minimize the effects of pollution of air, water, or land and to control noise and dust emissions within reasonable limits.

Every effort will be made to:

- a. Protect the land areas and to preserve them in their existing condition.
- b. Protect water resources, including measures for run-off or run-off controls if applicable.
- c. Implement sediment control measures, where warranted. These measures will also be implemented to control erosion.

Usually, field operations will generate solid and liquid waste (Investigative Derived Waste – IDW) requiring onsite handling and possible offsite disposal. The major types of waste to be generated, their environmental concerns, and their handling and disposition are summarized below:

- a. Personal and equipment decontamination containers disposed offsite following a thorough decontamination. Liquid waste will be included with well purging and development fluids.
- b. Personal Protective Equipment (PPE) will be double-bagged and will be the responsibility of TtNUS to dispose of according to applicable regulations. Disposal will normally be offsite.

It is not anticipated that any chemical releases will occur during the field activities.

The MSDSs for chemicals being brought onto the installation for use in field operations will be listed on a site-specific Chemical Inventory and maintained at the TtNUS Field Command Post. Copies of these documents are to be made available to client and offsite representatives who may be called upon to respond to an emergency event.

15.0 UXO/CWM PROCEDURES FOR FIELD OPERATIONS

15.1 General – field procedures for work on any installation can include any or all of the following tasks:

- a. Initial entry into suspect areas

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- b. CWM operations
- c. Surface and subsurface sampling
- d. Monitoring well installation
- e. Exploratory trenching
- f. Geophysical surveys
- g. Other miscellaneous operations

15.2 Initial Entry – initial entry into suspect areas require an UXO-qualified technician with a magnetometer (GA-52Cx) to screen a path into the area. The screened area is marked with lanes using either pin flags with plastic pins or marking tape. Suspect items on the surface and subsurface magnetic anomalies will be marked, usually with a different color tape or flag, and will be avoided by team members. The site where the work is to be conducted will be thoroughly screened for UXO/CWM contamination prior to any work commencing. All personnel will stay within the cleared areas and not venture out into areas not screened. If an area that has magnetic anomalies cannot be avoided, the UXO-qualified technician will hand excavate down to the anomaly to check to see if a hazard exists. Before excavation begins, the immediate area will be cleared of non-essential personnel outside of what could be a fragmentation zone (as determined by the UXO Technician). If the excavation reveals a hazard, the emergency notification procedures in paragraph 11.0 will apply.

15.3 CWM Operations - prior to conducting CWM operations, an Emergency Response Plan as required by 29CFR1910.120 and DA Pam 50-6 will be developed and implemented. Most of the information required to develop this plan should be obtained from the installation safety office; however, as a minimum, the following elements will be addressed:

- a. Pre-emergency planning and procedures for reporting incidents to appropriate government agencies for potential chemical exposure, person injuries, fire/explosions, environmental spills and releases, and discovery of radioactive materials.
- b. Personnel roles, lines of authority, communications.
- c. Posted instructions and list of emergency contacts: physicians, nearby notified medical facility, fire and police departments, ambulance service, state/local/federal environmental agencies, Certified Industrial Hygienist (CIH), and installation commander.
- d. Emergency recognition and prevention.
- e. Site topography, layout and prevailing weather conditions.
- f. Criteria and procedures for site evacuation (emergency alerting procedures/employee alarm system, emergency PPE and equipment, safe distance, place of refuge (assembly area), evacuation routes, site security and control).
- g. Specific procedures for decontamination and medical treatment of injured personnel.
- h. Route maps to nearest pre-notified medical facility.
- i. Criteria for initiating community alert program, contacts and responsibilities.
- j. Critique of emergency responses and follow-up.
- k. Material Safety Data Sheets (MSDS) for each hazardous substance anticipated to be encountered on site would be made accessible to site personnel at all times.

15.4 Sampling – sampling will be conducted in accordance with established protocols and methodologies. Site-specific sampling requirements will be presented in the project-specific Work Plans and/or in other project-specific documents such as Field Sampling and Analysis Plans and Quality Assurance Plans.

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Prior to initiating any sampling activities, an UXO-qualified technician will screen sites potentially contaminated with UXO/CWM. A magnetometer will be used to screen entry into a suspect area as in paragraph 15.2 above. Lanes will be marked and suspect items and subsurface anomalies will be identified and avoided. The immediate sampling area will be surface-screened prior to the introduction of the sampling team into the area.

Prior to any subsurface intrusive sampling, another check with a magnetometer needs to be accomplished. The GA-52Cx Magnetic Locator (magnetometer) can be used for collecting subsurface samples not greater than 0.5 feet. If excavation of a borehole or hand auguring hole is to exceed this depth, a MG-220 Magnetic Gradiometer (down hole magnetometer) shall be utilized with readings taken at two feet depth intervals.

If an anomaly is detected, the location will be marked and avoided. If appropriate and acceptable, an alternate sampling location (in a cleared area) will be designated. If the sampling location cannot be relocated then the UXO-qualified technician will hand excavate down to the anomaly to determine if it is hazardous. If it is not hazardous, the object will be set aside and the sampling event will continue. If the object has been determined to be hazardous or suspect, the sampling team will move out of the area and the emergency procedures listed in paragraph 11.0 will be implemented.

15.5 Monitoring Well Installation – the area within a 50-foot radius of the borehole and the off- road access path will be screened with the GA-52Cx magnetometer and be cleared of all metal objects. Once this is accomplished, the areas around borehole sites will be marked using colored marking tape and/or pin flags. Heavy equipment such as front-end loaders, backhoes, and bulldozers will not be used to develop or establish drill sites. The following action will be followed:

- a. The GA-52Cx magnetometer will be used directly over the borehole site to check for buried items down to 0.5 feet. After a surface check, the UXO-qualified technician will hand auger down to a depth of two feet and check down the hole using the MG-220 magnetometer.
- b. Once the hand-auguring hole has been cleared, the drill rig will be positioned over the proposed borehole. Drilling will commence to a depth of four feet, the drill auger will be removed from the borehole, the drill crew chief and UXO personnel will make observations of the soil from the core barrel and the soil removed from the hole by hand auger (if needed). The drilling log and lithologic log will be maintained in accordance with standard practices, noting any metal objects that may be found.
- c. The drilling derrick will be secured and drill rig moved to a position at least 20 feet from the borehole.
- d. The borehole will be checked again with the MG-220 magnetometer.
- e. If UXO or magnetic anomaly is present, the borehole will be abandoned and another location selected. The new borehole should be at least six feet from the original borehole. If a UXO or anomaly is not detected and the clearance is given, the drill rig shall be positioned back over the borehole, and drilling will proceed to the next depth (6 feet).
- f. Repeat above steps at intervals of 2 feet, until a depth of ten feet is reached. At the ten-foot interval, a magnetometer reading shall be taken with the MG-220 set on the maximum sensitivity. The instrument will detect larger objects (approaching 100 lbs.) that could be expected to penetrate to depths of 10 feet or more.

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- g. After reaching the depth of ten feet, the above steps will be repeated at intervals of 4 feet, until the desired depth is reached.

- 15.6 Exploratory Trenching and Excavation – at times, exploratory trenching may be required to determine the lateral extent of a landfill, burial pit, or subsurface geophysical anomaly. Trenching and excavation to uncover a subsurface area will be conducted using a backhoe, an excavator, or sometimes a front-end loader. **Any trenching or excavation activities (regardless of depth) must be done in accordance with OSHA 29 Subpart P requirements, which must be considered and addressed in the project-specific Health and Safety Plan.**

On project sites where excavation activities are within the scope of work and a UXO/CWM concern exists, the following additional procedures will be utilized to conduct these operations:

- a. The surface of the area to be trenched or excavated will first be swept with the GA-52Cx magnetometer. Anomalies will be hand excavated to determine if hazardous.
- b. No more than 0.5 feet of surface soil will then be gingerly removed (scraped) from the area of concern.
- c. The heavy equipment will be removed at least 20 feet away from the area, and the area will be checked with the MG-220 magnetometer. If the area is a trench, the entire length of the trench will be checked with the MG-220 and the excavation can continue two feet at a time. If the area is a wide-open area, it can once again be checked with the GA-52Cx, but only 0.5 feet of soil removal can be excavated at a time.
- d. Anomalies will continue to be uncovered by hand excavation until the desired results are obtained and the trench/area is abandoned and refilled.
- e. Excavation will continue another 2 feet if using the MG220 or 0.5 feet if using the GA-52Cx magnetometer. Once again after the proper depth of soil is excavated, the heavy equipment is removed from the area (>20 feet) and the area is rechecked with the magnetometer. If excavation depths reach 4 feet, suitable means of access/egress must be provided (e.g., ladders) and atmospheric monitoring must be performed prior to any entries.
- f. The above procedures are followed until the desired depth is reached and/or the desired results are obtained.

Once the area or trench has been cleared, excavation can continue to the proper depth before the equipment is again moved away (at least 20 feet) and the area/trench.

- 15.7 Geophysical Surveys – there are several instruments that can be used to conduct geophysical surveys. The GA-52Cx (Schonstedt) and the MG-220 are magnetometers and are passive instruments. The Geonics Terrain Conductivity Meter (EM-31) is an active instrument and is commonly used to measure subsurface terrain conductivity. This information can be used geophysical surveys, as well as for locating voids, discontinuities in soil structures such as boundaries of disposal pits and buried conducting objects. An Ordnance Safety Analysis of the Geonics Model EM-61 Non-Contacting Terrain Conductivity Meter was conducted by the Naval Surface Warfare Center at the request of TtNUS in April 1993. The analysis concluded, in summary, that the “Geonics EM-61 poses no ordnance safety hazard when operated in the normal survey mode, where the device is held at hip height.” However, the Geonics EM-61 should not be used with the boom on the ground if ordnance is present or suspected.

When using the magnetometer or the EM-61, a UXO-qualified technician will conduct a surface sweep of the area to be surveyed to ensure that no surface ordnance or other hazards exist. The

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magnetometer is a passive instrument; therefore, no special ordnance safety precautions are required.

Manufacture recommended procedures for the EM-61 must be followed to ensure safe operation during the geophysical survey. Standard survey protocols and quality assurance methods will also be required during survey operations.

- 15.8 Miscellaneous Operations – due to the potential of UXO/CWM materials being encountered during field activities, UXO support will be provided at all site locations. UXO support will be provided for any and all field activities that are in areas suspected to contain UXO and/or CWM. These areas also include those areas covered with water and creeks, canals, etc.

Operations that involve the inspection, hazard classification, segregation, and final disposal of UXO and UXO-related scrap will not be covered in this SOP. The demilitarization of UXO and UXO-related scrap is not authorized unless specific work plans, SOPs, health and safety plans and other established procedures are written and approved addressing these operations.

16.0 HAZARD CONTROL BRIEF

A Health and Safety Hazard Control Briefing (i.e., tailgate meetings) will be conducted daily prior to the start of onsite activities. The briefing will be detailed and will cover the information in the Safe Work Permits for the anticipated tasks for the day, as well as applicable portions of this SOP. Additional briefings will be conducted as necessary for tasks that become necessary during the course of a workday, if they were not covered in the morning briefing. These briefings are in addition to (not in place of) the site-specific health and safety training that is required for all onsite personnel prior to their participation in any onsite, intrusive activities.

The following information will be given during the daily briefings:

- a. Overview of task(s) to be performed and review of appropriate Safe Work Permits with task participants.
- b. Overview of the day's objectives, as well as general site hazards
 - Unexploded Ordnance Hazards
 - Chemical Warfare Agents and Materials
 - Physical Hazards
- c. Overview of Standard Work Practices pertinent to the day's planned activities
- d. Review of any worker incidents or near-miss events, including a review of corrective/preventive measures to prevent recurrence
- e. Overview of Emergency Response Actions, evacuation routes and assembly points

17.0 SECURITY

Field activities under various TtNUS contracts are typically unclassified and normal security measures apply in accordance with above references (paragraph 9.1 above). TtNUS personnel and their subcontractors will check in with the appropriate client/installation's security office and may be issued security badges for entry into certain work areas. This SOP will not cover special security requirements for projects involving UXO/CWM as most installations have established policies and procedures on

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reporting and securing recovered items that are UXO and/or CWM. The TtNUS Project Manager will incorporate all security procedures required by the installation into the site work plan.

ATTACHMENT II

SITE-SPECIFIC TRAINING DOCUMENTATION FORM

AND

EMPLOYEE TRAINING/QUALIFICATIONS/MEDICAL

CLEARANCE

TO BE ATTACHED BY PM/FOL/SSO

**(40-Hour HAZWOPER Certificates; 8-Hour HAZWOPER
Refresher Certificates; First Aid/CPR Certificates;
employee resumes as required)**

Insert employee documents here.

ATTACHMENT III

OSHA POSTER

Job Safety and Health

It's the law!

EMPLOYEES:

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

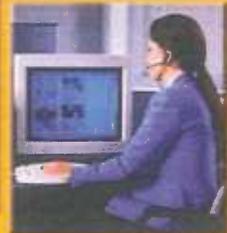
EMPLOYERS:

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

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

OSHA

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



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

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

OSHA 3185-12-08R