

Appendix D

Accident Prevention Plan

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Final

Accident Prevention Plan
for
MEC Removal Action Along Baines Gap Road
at
Ft. McClellan, Alabama

PREPARED FOR:

U.S. ARMY ENGINEERING AND SUPPORT CENTER, HUNTSVILLE



Contract Number: W912DY-04-D-0011

Task Order Number: 0004

PREPARED BY:

Tetra Tech EC, Inc.
Huntsville, Alabama

December 2005

The views, opinions, and/or findings contained in this report are those of the author(s) and should not be construed as an official Department of the Army position, policy, or decision, unless so designated by other documentation.

Signature Sheet

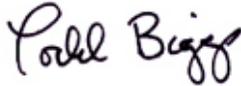
This Accident Prevention Plan (APP) has been prepared to address the general hazards associated with work activities at Fort McClellan and will be used in conjunction with site specific health and safety plans prepared for individual task orders. By their signatures, the undersigned certify that this APP will be utilized for the protection of the health and safety of workers during work activities at Fort McClellan.

APPROVALS:



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Date



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Project Manager

November 16, 2005

Date



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November 18, 2005

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Attachment A-1 Activity Hazard Analyses

1.0 BACKGROUND INFORMATION

Contractor:

Tetra Tech EC, Inc.

Contract Number:

W912DY-04-D-0011

Project Name:

Bains Gap Road Area, US Fish and Wildlife Transfer

1.1 BRIEF PROJECT DESCRIPTION

Perform a clearance to depth MEC removal action (RA) and dispose of all hazards in specified portions of the lands along Bains Gap Road transferred to the U.S. Fish & Wildlife Service.

1.2 PHASE LISTING AND AHA REQUIREMENTS

AHA's are provided in Attachment A to this APP.

1.2.1 Statement of Safety and Health Policy

This APP has been prepared in conformance with the Tetra Tech EC, Inc., Health and Safety programs, policies and procedures; the U.S. Army Corps of Engineers Safety and Health Requirements Manual, EM 385-1-1; and the U.S. Army Corps of Engineers Safety and Occupational Health Document Requirements for Hazardous, Toxic and Radioactive Waste (HTRW) and Ordnance and Explosive Waste (OEW) Activities, ER 385-1-92. This APP contains the general requirements for protection of site personnel and the general public during work activities at Fort McClellan and will be implemented by the UXO Site Safety and Health Officer (UXOSO) or his designee during site work. The content of this APP may change or undergo revision based upon additional information made available to safety and health personnel, monitoring results, or changes in the technical scope of work. Any changes proposed must be reviewed by the Tetra Tech EC, Inc. UXOSO and are subject to the approval of the Tetra Tech EC, Inc. Project Environmental and Safety Manager (PESM). Changes are also subject to the approval of CEHNC. The Field Change Request Form will be used to initiate such changes.

The protection of site workers and environmental safety and health are major concerns during site operations. The purpose of this plan is to ensure safe and healthful working conditions at the site. The safety and health organization and procedures contained in this APP have been established based upon an analysis of the potential hazards, and personnel protection measures have been chosen based on these risks.

Compliance with this APP is required by all Tetra Tech EC, Inc. employees and their contractors, subcontractors and visitors who may participate in activities at Fort McClellan. Refusal or failure to comply with the APP or violation of any safety procedures by field personnel and/or subcontractors may result in their immediate removal from the site following consultation with the Tetra Tech EC, Inc. PESM and the Project Manager (PM).

1.2.2 Responsibilities and Lines of Authority

Staff Organization, Qualifications, and Responsibilities

The responsibilities of the health and safety staff are described in the following sections.

1.2.2.1 Project Manager (PM)

- Ensures implementation of this program through coordination with the Project Environmental and Safety Manager (PESM);
- Conducts monthly inspections jointly with the UXOSO;
- Participates in major incident investigations;
- Ensures the APP has all the required approvals before any site work is conducted;
- Ensures that the PESM and UXOSO are informed of project scope changes which require modifications of the APP;
- Has overall project responsibility for health and safety; and
- Ensures that adequate resources are provided to the field staff to carry out their responsibilities as outlined below.

1.2.2.2 Project Environmental and Safety Manager (PESM)

- Provides for the development and approval of the APP;
- Serves as the primary contact to review health and safety matters that may arise;
- Approves revised or new safety protocols for field operations;
- Approves individuals who are assigned UXOSO responsibilities;
- Approves the UXOSO to fulfill other project roles;
- Coordinates revisions of this APP with field personnel;
- Coordinates upgrading or downgrading of personal protective equipment with the UXOSO;
- Assists in the investigation of major accidents, and
- Conducts quarterly inspections for compliance with the APP.

1.2.2.3 Senior UXO Supervisor (SUXOS)

- Directs the surface inspection and sweep using a magnetometer;

- Has overall supervisory responsibility for specific MEC procedures;
- Coordinates with the UXOSO on matters regarding MEC;
- Halts or modifies any work conditions or removes personnel from the task site if the conditions are unsafe;
- Ensures that all task site personnel understand and comply with all MEC safety requirements;
- Monitors team leader and team member performance including safety and quality control;
- Responsible for overall direction of on-site intrusive activities;
- Has direct supervision of specific MEC procedures;
- Responsible for the day-to-day MEC-related work at the site;
- Responsible for implementing and enforcing all work plans related to MEC operations;
- Conducts daily activities such as: supervising employees in site-specific MEC operations, overseeing the implementation of specified levels of personal protective equipment, identifying potential problem areas and making corrective action recommendations to the PM, implementing all corrective actions, and maintaining a daily log of work activities including noting any extraordinary occurrences;
- Initiates corrective actions for observed safety violations;
- Assists the UXOSO with the daily safety meeting.
- Responsible for conducting weekly EHS inspections.

1.2.2.4 UXO Site Safety and Health Officer (UXOSO)

- Works as a member of the project team to ensure implementation of this APP;
- Ensures that all health and safety activities identified in this APP is conducted and/or implemented;
- Identifies operational changes which require modifications to health and safety procedures and the APP, and ensures that the procedure modifications are implemented and documented through changes to the APP;
- Directs and coordinates health and safety monitoring activities;
- Ensures that proper personal protective equipment is utilized by field teams;
- Assists in conducting daily safety briefings;
- Monitors compliance with this APP;
- Notifies the PESM and the CEHNC Safety Specialist of all accidents/incidents;
- Coordinates with the Tetra Tech EC, Inc PM and CEHNC Safety Specialist in any incident investigation;
- Maintains Accident/Incident Report Forms;

- Determines upgrades or downgrades of personal protective equipment (PPE) based on site conditions and/or real-time monitoring results;
- Ensures that monitoring instruments are calibrated;
- Reports to the PESM to provide summaries of field operations and progress; and
- Maintains health and safety field log books.

1.2.2.5 Field Crew Personnel

- Report any unsafe or potentially hazardous conditions to the UXOSO;
- Maintain knowledge of the information, instructions, and emergency response actions contained in this APP;
- Comply with rules, regulations and procedures set forth in this APP, and any revisions that are instituted;
- Prevents admittance to work sites by unauthorized personnel. If the unauthorized persons refuse to leave, the field crew personnel shall cease operations and notify the local police department who will remove these individuals; and
- Inspect all tools and equipment, including PPE, daily prior to use.

1.2.3 Subcontractors and Suppliers

Subcontractors expected on-site:

Surveyor – Skipper Engineering
Brush Clearance – Envirogrind LLC

Subcontractors will receive a site specific operational and safety brief before starting work at the site. Each morning they will attend the daily safety brief and receive instructions on areas to work and exclusion zones. Subcontractors will be escorted by UXO Technician escort(s) throughout the duration of their field task as required. The UXO Technician(s) will maintain radio contact with the TTEC Field Office and SUXOS during the working hours.

Subcontractor personnel working on site only occasionally, for a specific limited task (such as land surveying) and who are unlikely to be exposed beyond permissible exposure limits, may be exempted from the initial 40-hour training requirement. The PESM will determine if this exemption is allowed. If subcontractor personnel are exempted from the 40-hour training requirements, they shall have completed a minimum of 24 hours of off-site instruction and one day of actual field training under the direct supervision of a trained, experienced supervisor.

Oversight of subcontractors are the responsibility of the SUXOS and UXOSO/QC who will perform quality and safety checks of the work produced. Both TTEC managers have stop work authority to ensure that safe operations and quality work are accomplished in accordance with CEHNC 385-1-1, TTEC EHS Procedures and OSHA regulations.

1.3 TRAINING

1.3.1 Safety Indoctrination

Prior to commencement of field activities, all field personnel assigned to the project will have completed training that will specifically address the activities, procedures, monitoring, and equipment used in the site operations. It will include site and facility layout, hazards and emergency services at the site and will highlight all provisions contained within this APP. This training will also allow field workers to clarify anything they do not understand and to reinforce their responsibilities regarding safety and operations for their particular activity. During this training, the Project Rules Handbook will be reviewed by all site personnel. All site personnel will sign the acknowledgement page, and have the signed page placed in their training files. Written certification of completion of the required training and medical surveillance will be provided to the Tetra Tech EC, Inc. and CEHNC prior to field mobilization. The Project Manager has the responsibility of ensuring that personnel assigned to this project comply with these requirements.

1.3.2 Mandatory Training

Pursuant to 29 CFR 1910.120(e), hazardous waste site workers shall, at the time of job assignment, have received a minimum of 40 hours of initial health and safety training for hazardous waste site operations unless otherwise noted in the above reference. As a minimum, the training shall have consisted of instruction in the topics outlined in the above reference. Personnel who have not met the requirements for initial training shall not be allowed to work in any site activities in which they may be exposed to chemical or physical hazards.

1.3.2.1 OJT Training

In addition to the required initial training, each employee shall receive three days of directly supervised on-the-job training (i.e., close supervision during the first three days on the job in the field). This training will address the duties the employees are expected to perform.

1.3.2.2 HAZCOM Training

Hazard communication training will be provided in accordance with the requirements contained in the Tetra Tech EC, Inc., Health and Safety Procedure EHS 4-2.

1.3.2.3 Manager/Supervisor Training

In accordance with 29 CFR 1910.120(e), on-site managers and supervisors who will be directly responsible for, or who supervise employees engaged in hazardous waste operations shall receive at least eight additional hours of specialized training on managing such operations at the time of job assignment. This course shall include eight hours of training on topics such as the TtECI EHS program and procedures, health and safety training requirements, personal protective equipment, emergency preparedness programs/procedures, and health hazard monitoring procedures and techniques.

1.3.2.4 Annual 8-Hour Refresher Training

Annual eight-hour refresher training will be required of all hazardous waste site field personnel in order to maintain their qualifications for fieldwork. The training will cover a review of 1910.120 requirements and related company programs and procedures.

1.3.2.5 Off-Road Vehicle Training

Prior to operating Off-Road Vehicles operators will attend a training class on the safe operation and maintenance of the vehicle. The class will include the Do's and Don'ts for operating vehicles in rough terrain areas.

1.3.2.6 UXO Training

In accordance with CEHNC DID OE-25 Personnel/Work Standards, UXO personnel assigned to the positions of UXO Technician I, UXO Technician II, UXO Technician III, UXO Safety Officer (UXOSO), UXO Quality Control Specialist (UXOQCS), and Senior UXO Supervisor (SUXOS), shall be U.S. Citizens and graduates of one of the following schools or courses:

- a. US Army Bomb Disposal School, Aberdeen Proving Ground, MD
- b. US Naval Explosive Ordnance Disposal (EOD) School, Indian Head, MD or Eglin AFB, FL
- c. EOD Assistants Course, Redstone Arsenal, AL; EOD Assistants Course, Eglin AFB, FL; or a DoD certified equivalent course.

1.3.3 Senior UXO Supervisor (SUXOS)

The SUXOS shall be a graduate of a school listed in paragraph a. or b. This individual shall have at least 15 years MEC experience, which may be a combination of active duty military EOD and contractor MEC experience; and shall include 10 years in supervisory positions. A SUXOS must be able to fully perform all of the functions enumerated for MEC Sweep Personnel and UXO Technicians I, II, and III. In addition, the ability to perform the following functions is a requirement for the SUXOS: Planning, coordinating, and supervising all contractor on-site MEC activities; preparation of standard operating procedures (SOPs) for MEC operations ensuring compliance with DoD directives as well as local, state, and federal statutes and codes; and certification of Ammunition, Explosives, and Dangerous Articles (AEDA) and/or range scrap as ready for turn-in or disposal in accordance with current policies. The SUXOS must also be fully capable of supervising multiple project teams which may be performing MEC -related activities; e.g., vegetation clearance; land surveying; reconnaissance and classification of MEC, pyrotechnic items, and military explosives and demolition materials; locating surface and subsurface MEC; destroying MEC by burning or detonation; and/or transporting and storing MEC and explosives material.

1.3.4 UXO Technician III

This individual, who supervises a project team, shall be a graduate of a school listed in paragraph a. or b. This individual shall have experience in MEC clearance operations and supervising

personnel, and shall have at least ten years combined active duty military EOD and contractor MEC experience. This individual must be able to fully perform all functions enumerated for MEC Sweep Personnel, UXO Technicians I and II. In addition, the ability to perform the following functions is a requirement for the UXO Technician III: Supervising and performing on-site disposal of Ordnance and Explosives; preparing explosives storage plans in accordance with all applicable guidance; preparing required MEC administrative reports; preparing SOPs for on-site MEC operations; performing risk hazard analyses; conducting daily site safety briefings; and supervising the conduct of all on-site evolutions directly related to MEC operations.

1.3.5 UXO Technician II

This individual shall be a graduate of a school listed in paragraph a. or b. As an exception, a UXO Technician II may be a UXO Technician I with at least five years combined military EOD and contractor MEC experience. This individual must be able to fully perform all functions enumerated for MEC Sweep Personnel and UXO Technician I. In addition, the ability to perform the following functions is a requirement of the UXO Technician II: Properly storing MEC material in accordance with applicable guidance; identifying fuzes and determining fuze condition; determining a magnetic azimuth using current navigational/locating equipment; performing field expedient identification procedures to identify explosives.

1.3.6 UXO Technician I

This individual shall be a graduate of a course listed in paragraph c. A UXO Technician I can advance to the UXO Technician II category after five years combined active duty military EOD and contractor MEC experience. This individual assists fully qualified personnel (UXO Technician II and above) in the following functions: Conducting reconnaissance and classification of MEC and other MEC materials; identifying all munitions including bombs and bomb fuzes, guided missiles, projectiles and projectiles fuzes, rockets and rocket fuzes, land mines and associated components, pyrotechnics items, military explosives and demolition materials, grenades and grenade fuzes, and sub-munitions; locating subsurface MEC using military and civilian magnetometers and related equipment; performing excavation procedures on subsurface MEC; locating surface MEC by visual means; transporting MEC and demolition materials; preparing firing systems, both electric and non-electric, for destruction operations; operating Personnel Decontamination Stations (PDS); inspecting salvaged MEC related material and erection of MEC related protective works; and donning and doffing personal protective equipment.

1.3.7 Quality Control Specialist (UXOQCS)

This individual shall have the same minimum qualifications as a UXO Technician III. In addition, this individual shall have documented Quality Control Training. This individual must be able to fully perform all functions enumerated for MEC Sweep Personnel and UXO Technicians I, II, and III. This individual must have the specific training, knowledge, and experience necessary to fully implement the contractor's QC plans. In addition, the UXOQCS must have the ability to implement the MEC specific sections of the Quality Control Program for all MEC related evolutions; conduct quality control inspections of all MEC and explosives operations for compliance with established procedures; and direct and approve all corrective

actions to ensure all MEC related work complies with contractual requirements. This individual has stop work authority for quality control issues

1.3.8 UXO Site Safety and Health Officer (UXOSO)

This individual shall have the same minimum qualifications as a UXO Technician III. In addition, this individual shall have the specific training, knowledge, and experience necessary to implement the APP and verify compliance with applicable safety and health requirements. The UXOSO will have the 10-Hour OSHA construction safety course per EM-385-1-1. This individual must be able to perform all functions enumerated for MEC Sweep Personnel and UXO Technicians I, II, and III. In addition, the UXOSO must have the ability to implement the approved MEC and site safety program in compliance with all DoD, federal, state, and local statutes and codes; analyze MEC and explosives operational risks, hazards, and safety requirements; establish and post personnel limits for the site; establish and ensure compliance with all site-specific safety requirements for MEC and explosives operations; enforce personnel limits and safety exclusion zones for MEC clearance operations, MEC and explosives transportation, storage, and destruction; conduct safety inspections to ensure compliance with MEC and explosives safety codes; and operate and maintain air monitoring equipment required at site for airborne contaminants. The UXOSO has stop work authority for unsafe conditions observed for this project.

1.3.9 MEC Sweep Personnel

This position requires site and job specific contractor training (which may include ordnance recognition, safety precautions, donning and doffing personnel protective equipment, etc.) but does not require UXO technician qualifications. MEC Sweep personnel assist MEC technicians and supervisory personnel in the clearance of MEC, operating only under the direct supervision of qualified UXO technicians and/or MEC supervisors. MEC Sweep Personnel conduct visual and/or instrumented MEC search activities in the field; perform field maintenance on military and civilian magnetometers; operate ordnance detection instruments and other similar equipment to include digital geophysical mapping instruments; and remove MEC scrap after such items have been certified/verified safe for handling by a qualified UXO technician. MEC sweep personnel are not involved in the execution of explosives operations.

1.3.10 Documentation

Documentation of training requirements is the responsibility of each employer. Written documentation verifying compliance of training and medical requirements must be submitted to the UXOSO before entering the exclusion or reduction zones and will be kept on site. Subcontractors will provide the required copies of training certificates and clearances prior to beginning fieldwork. No one will be allowed to work in an exclusion zone without the appropriate training and medical clearances. Access to these records will be afforded government personnel to confirm training status.

1.4 EMERGENCY RESPONSE TRAINING

1.4.1 First Aid and CPR

The UXOSO will identify those individuals requiring first aid and CPR training in order to ensure that emergency medical treatment is available during field activities. A minimum of two field personnel on-site at Fort McClellan at any one time will have first aid and CPR training. The training will be consistent with the requirements of the American Red Cross Association.

1.4.2 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 EC Bloodborne Pathogens Program EHS 4-1 and OSHA Bloodborne Pathogen Standard, 29 CFR 1910.1030. The Hepatitis B Vaccine Declination (mandatory) will be one of the topics covered in the training in accordance with 29 CFR 1910.1030 Appendix A.

1.4.3 Fire Extinguisher Training

Fire extinguisher education and training will be conducted in accordance with 29 CFR 1910.157 (g).

1.4.4 Emergency Response Drill

Contact with local emergency response personnel will be established and an emergency response drill will be conducted within the first week to ensure response procedures are in place.

1.5 SAFETY MEETINGS

Project personnel and visitors will be given on-site health and safety briefings by the SUXOS or UXOSO to assist site personnel and visitors in safely conducting their work activities. The briefings will include information on new operations to be conducted, changes in work practices or changes in the site's environmental conditions, as well as periodic reinforcement of previously discussed topics. The briefings will also provide a forum to facilitate conformance with safety requirements and to identify performance deficiencies related to safety during daily activities or as a result of safety inspections. The meetings will also be an opportunity for the UXOSO to periodically update the crews on monitoring results. Prior to starting any new activity, a training session using the Activity Hazard Analysis will be held for crew members involved in the activity.

1.5.1 Visitors

All visitors to the site, even if escorted, must review the APP and receive a safety briefing. Visitors will not be permitted in the restricted work areas unless they comply with site-specific requirements. Visitors not complying with the above requirements shall not enter the restricted work areas; however, they may observe site conditions from a safe distance. In addition, during intrusive activities, only essential MEC-qualified personnel shall be in the exclusion zone. If

visitors, or unexpected intruders, enter the exclusion zone, all intrusive activities shall cease until they are removed from the EZ.

1.5.2 Safety and Health Inspections

Weekly and monthly project inspections will be conducted in accordance with the Tetra Tech EC, Inc. Program, EHS 3-3. Weekly inspections are to be conducted by the UXOSO. Monthly inspections are to be conducted by the Project Manager.

The PESM shall conduct quarterly inspections. The PESM inspection shall include:

- A visual inspection of the site. Areas of the project site that may be accessed and inspected, including but not limited to, exclusion zones, buildings, and waste storage areas;
- Completion of applicable and selected portions of the PESM Inspection Checklists or equivalent documentation;
- A review of on-site records (e.g., permits, agency approvals, waste analyses, waste profiles, waste manifests, discharge monitoring reports, training records, etc.);
- Positive recognition of conformance;
- Non-conformances noted by the PESM that can be remedied during the conduct of the inspection will be corrected. Conformance and non-conformance shall be documented on the PESM Inspection Checklists;
- Training of project personnel, when possible, to address non-conformances; and
- Identification of any observed best practices.

The PESM will stop work if any conditions or work practices are identified which pose imminent danger to the environment or to the safety and health of personnel. The UXO qualified PESM will be considered an authorized visitor in regards to access to the exclusion zone and other operations and as such will require an approval letter for exclusion zone access, from the District SOHO.

1.5.3 Accident Reporting

As soon as first aid and/or emergency response needs have been met, the following parties are to be contacted by telephone:

1. Todd Biggs, Project Manager
2. Steve Neill, PESM
3. The employer of any injured worker who is not a Tetra Tech EC, Inc. employee

Written confirmations of verbal reports are to be submitted within 24 hours. The accident/incident report is found in the Tetra Tech EC, Inc. Corporate Health and Safety Program EHS 1-7. If the employee involved is not a Tetra Tech EC, Inc. employee, his employer shall receive a copy of the report. All accidents on US Army Corps of Engineers projects are reportable, though not all are recordable.

Upon receiving a report of incident occurrence on this site, the UXOSO will investigate the circumstances surrounding the incident. The PESM may also participate in the investigation of serious incidents. The Standard Incident Report and Follow-up Form in Attachment 6-9 may be used to assist in the investigation.

All accidents or incidents will be investigated, as appropriate, and an accident report will be completed. The Contracting Officer will be notified by telephone as soon as first aid and/or emergency response needs have been met. A written report will be provided within 30 calendar days on ENG. Form 3394 to the Contracting Officer. For reporting purposes, the term accident refers to fatalities, lost time injuries, spill or exposure to hazardous materials (radioactive materials, toxic materials, explosive or flammable materials), fire, explosion, property damage, or potential occurrence of the above. Any information released from the health care provider, which is not deemed confidential patient information is to be attached to the appropriate form. Any medical information that is released by patient consent is to be filed in the individual's medical records and treated as confidential.

All accidents must be reported on ENG 3394 and submitted within 30 calendar days to the Contracting Officer. Should an accident occur which results in a fatality, \$10,000 or more in property damage, three or more persons hospitalized or any adverse publicity for the USACE, it must be reported immediately to the *Contracting Officer ((256) 895-1387)* by telephone and reported on ENG 3394 as stated above.

In addition to the USACE incident form, the accident/incident report found in the Tetra Tech EC, Inc. Corporate Health and Safety Program EHS 1-7, Incident Reporting and Investigation, shall be completed, and is included in Appendix F. Written confirmation of verbal reports are to be submitted to the PESM within 24 hours. Incident investigation analysis reports are to be submitted to the PESM within 72 hours.

An OSHA Form 300 is issued in February of each year and will be kept at the project site. All recordable injuries or illness will be recorded on this form. At the end of the project, the original will be sent to the PESM for maintenance. Subcontractor employers must also meet the requirements of maintaining an OSHA 300 Form. The Tetra Tech EC, Inc. incident reporting and investigation form referenced the previous section meets the requirements of the OSHA Form 101 (supplemental record) and must be maintained with the OSHA Form 300 for all recordable injuries or illness.

1.5.4 Personal Protective Equipment

The PPE specified herein is required by 29 CFR 1910.132. Specific information on the selection rationale for each activity can be found under the Hazard Analyses. For the purposes of PPE selection, the PESM and UXOSO are considered competent persons. The signatures on the approval page of this APP constitute certification of the hazard assessment. For activities not covered, the UXOSO will conduct the hazard assessment and select the proper PPE. This shall be attached to a field change request form and the PESM shall certify the assessment by signing the form. PPE selection will be made in consultation with the PESM.

Modifications for initial PPE selection may also be made by the UXOSO in consultation with the PESM using the same form. A written justification for major downgrades will be provided to the PESM for approval on a field change request form. All changes to the PPE, once approved, must also be approved by CEHNC.

It should be noted that this APP makes provisions for adjustment of protection levels. The type of equipment used and the overall level of protection should be re-evaluated periodically as the amount of information about the work activity increases, and as workers are required to perform different tasks. The level of protection appropriate for the tasks and working conditions will be determined for each specific project site by the PESM. Protection levels may be upgraded or downgraded based on physical conditions (e.g., generation of dust) on-site. Changes in protection levels will be made in accordance with the following criteria:

- Reasons to Upgrade:
 - Known or suspected presence of dermal hazards.
 - Occurrence or likely occurrence of gas or vapor emission.
 - Change in work task that will increase contact or potential contact with hazardous materials.
 - Request of the individual performing the task.
- Reasons to Downgrade:
 - New information indicating that the situation is less hazardous than originally thought.
 - Change in site conditions that decrease the hazard.
 - Change in work task that will reduce contact with hazardous materials.

2.0 PROJECT SAFETY PLANS

2.1 EMERGENCY RESPONSE PLANS

2.1.1 Procedures and Tests

This section establishes procedures and provides information for use during a project emergency. Emergencies happen unexpectedly and quickly, and require an immediate response; therefore, contingency planning and advanced training of staff are essential. An emergency plan is required by OSHA (29 CFR 1910.120) and EM 385-1-1 to be available for use and is included below. A copy of this plan shall be posted in the Site Zonation (SZ) at each work site. Careful consideration has been given to the relative possibility of fire, explosion, or release of vapors, dusts, or gases that may impinge on nearby facilities.

2.1.2 Responsibilities

2.1.2.1 PESM

The PESM oversees and approves the Emergency Response/ Contingency Plan and performs audits to determine that the plan is in effect and that all pre-emergency requirements are met. The PESM acts as a liaison to applicable regulatory agencies and notifies OSHA of reportable accidents and fatalities.

2.1.2.2 SUXOS

The SUXOS serves as the Emergency Coordinator (see below).

2.1.2.3 UXOSO

The UXOSO is responsible for ensuring that all personnel are evacuated safely and that machinery and processes are shut down or stabilized in the event of a stop work order or evacuation. The UXOSO is required to immediately notify the PESM of any fatalities or catastrophes (three or more workers injured and hospitalized) so that the PESM can notify OSHA within the required time frame. The PESM will be notified of all OSHA recordable injuries, fires, spills, releases or equipment damage in excess of \$500 in writing within 24 hours.

2.1.2.4 Emergency Coordinator

The emergency coordinator shall make contact with Local Emergency Response personnel prior to beginning work on site. In these contacts the emergency coordinator will inform interested parties about the nature and duration of work expected on the site and the type of contaminants and possible health or safety effects of emergencies involving these contaminants. The emergency coordinator shall locate emergency phone numbers and identify hospital routes prior to beginning work on site. The emergency coordinator shall make necessary arrangements to be prepared for any emergencies that could occur. The SUXOS is the emergency coordinator. The UXOSO will serve as the Alternate Emergency Coordinator.

The Emergency Coordinator shall implement the Emergency Response/Contingency Plan whenever conditions at the site warrant such action. The coordinator will be responsible for prior coordination of the emergency treatment and emergency transport of site personnel as necessary, and notification of emergency response units and the appropriate management staff.

2.1.2.5 Site Personnel

The contents and requirements of the project-specific Emergency Response/ Contingency plan will be reviewed, at a minimum, with all on-site personnel during their initial briefing and during daily briefings as necessary. Site personnel are responsible for knowing how to initiate emergency response actions and their respective responsibilities in the event the Emergency Response/Contingency Plan must be implemented. Personnel are expected to notify the Emergency Coordinator of situations that could constitute a site emergency or result in the occurrence of a site emergency.

2.1.3 Communication

A variety of communication systems may be utilized during emergency situations. Routine site communications will take place face-to-face and/or via two-way radios. Each team will be supplied with portable radios for communication with support facilities. These are discussed in the following sections.

2.1.3.1 Radios

Hand-held two-way radios will be utilized as appropriate by field teams for communication.

2.1.3.2 Telephone Communication

Cellular telephones or the closest site telephone for emergency use will be available. The location of the nearest phone will be given to all workers and posted prior to commencing work. Emergency numbers will be maintained by the UXOSO and posted in the SZ and carried in all vehicles.

2.1.3.3 Hand Signals

These will be employed by downrange field teams along with utilizing the buddy system. These signals are also very important when working with heavy equipment. The entire field team will know them before operations commence and their use will be covered during site-specific training. Typical hand signs are the following:

SIGNAL	MEANING
Hand gripping throat	Out of air, can't breathe
Grip on a partner's wrist or placement of both hands around a partner's wrist	Leave the area immediately, no debate.
Hands on top of head	Need assistance
Thumbs up	Okay, I'm all right, I understand.
Thumbs down	No, negative.

2.1.3.4 Audio Signals

Audio signals will be utilized in the event of an emergency or a need to evacuate the site. Three blasts will be sounded on an air horn or vehicle horn to obtain the attention of site personnel. Site personnel should then evacuate as trained and muster at the specified assembly point.

2.1.4 Local Emergency Support Units

In order to be able to deal with any emergency that might occur during activities at the site, the emergency response table will be posted prominently in the field office and in all places where telephone service is available. A hospital and/or WorkCare Clinic route map will be provided in Appendix B for non-emergency trips to the hospital or clinic. This map will be posted adjacent to the above emergency telephone numbers in the field office and in all places where telephone service is available. It should also be placed in all on-site vehicles.

2.1.4.1 Pre-emergency Planning

The Tetra Tech EC, Inc. Emergency Coordinator will communicate directly with administrative personnel from the emergency room at the hospital in order to determine whether the hospital has the facilities and personnel needed to treat cases of trauma resulting from exposure to any of the contaminants expected to be found on the site. Instructions for finding the hospital will be posted conspicuously in the site office and in each site vehicle.

Before field activities begin, the local emergency response personnel will be notified of the schedule for field activities and about the materials that are thought to exist on the site so that they will be able to respond quickly and effectively in the event of a fire, explosion, or other emergency.

Before fieldwork on the site commences, each person who will be working at the project site or observing the operations will complete a medical data sheet. These data sheets will be filled out during initial site-specific training and will be kept on the site.

In the event of an incident where a team member becomes exposed or suffers from an acute symptom of exposure to site materials and has to be taken to a hospital, a copy of his/her medical data sheet will be presented to the attending physician.

2.1.4.2 Emergency Medical Treatment

The procedures and rules in this APP are designed to prevent employee injury. However, should an injury occur, no matter how slight, it will be reported to the UXOSO immediately. First-aid equipment will be available on site at the following locations:

First Aid Kit:	SZ/Field Team Vehicle
ANSI Approved Emergency Eye Wash:	SZ/Field Team Vehicle

During the site safety briefing, project personnel will be informed of the location of the first aid station(s) that has been set up. Unless they are in immediate danger, severely injured persons will

not be moved until paramedics can attend to them. Some injuries, such as severe cuts and lacerations or burns, may require immediate treatment. Any first aid instructions that can be obtained from doctors or paramedics, before an emergency-response squad arrives at the site or before the injured person can be transported to the hospital, will be followed closely.

At a minimum, two (2) individuals holding current certification in First Aid/ Cardiopulmonary Resuscitation (CPR) must be present on site.

When personnel are transported to the hospital, the UXOSO will provide a copy of the Medical Data Sheet to the paramedics and treating physician.

Only in **non-emergency** situations will an injured person be transported to the hospital/WorkCare clinic by means other than an ambulance.

Route to Stringfellow Hospital (see Appendix B Site Maps) Depart Fort McClellan through Baltzell Gate, turn south on State Highway 21, follow Highway 21 approximately 5 miles to 19th Street, turn left on 19th Street and then right onto Leighton. Stringfellow Hospital is on the immediate right. A route map with printed instructions is included in Appendix B.

2.1.4.3 Emergency Site Evacuation Routes and Procedures

In order to mobilize the manpower resources and equipment necessary to cope with a fire or other emergency, a clear chain of authority will be established. The Emergency Coordinator will take charge of all emergency response activities and dictate the procedures that will be followed for the duration of the emergency. The Emergency Coordinator will report immediately to the scene of the emergency, assess the seriousness of the situation, and direct whatever efforts are necessary until the emergency response units arrive. At his/her discretion, the Emergency Coordinator also may order the closure of the site for an indefinite period.

All project personnel will be instructed on proper emergency response procedures and locations of emergency telephone numbers during the initial site safety meeting. If an emergency occurs, including, but not limited to fire, explosion or significant release of toxic gas into the atmosphere, an air or automobile horn will be sounded on the site. The horn will sound for three blasts, signaling that immediate evacuation of all personnel is necessary due to an immediate or impending danger. All heavy equipment will be shut down and all personnel will evacuate the work areas and assemble at the designated rally point that shall be determined upon arrival at the site. The senior person at the rally point will conduct a head count and report the results to the Emergency Coordinator.

The Emergency Coordinator will give directions for implementing whatever actions are necessary. Any project team member may be assigned to be in charge of emergency communications during an emergency. He/she will attend the site telephone specified by the Emergency Coordinator from the time the alarm sounds until the emergency has ended.

After sounding the alarm and initiating emergency response procedures, the Emergency Coordinator will check and verify that access roads are not obstructed. If traffic control is necessary, as in the event of a fire or explosion, a project team member, who has been trained in

these procedures and designated at the site safety meeting, will take over these duties until local police and fire fighters arrive.

The Emergency Coordinator will remain at the site to provide any assistance requested by emergency-response squads as they arrive to deal with the situation. Evacuation routes, meeting places, and location of emergency equipment and first aid supplies shall be discussed during the site-specific briefing.

2.2 SPILL PLANS

2.2.1 Isolation

Until determined otherwise, any unidentified spilled material will be assumed to be hazardous. The material will be isolated as quickly as possible using the following procedures:

- Personnel will immediately don the proper PPE
- Sources of ignition within 50 feet will be extinguished immediately or de-energized (including vehicle engines).
- Access to the area will be eliminated to the extent possible using barricades, caution tape, cones or other means available.
- Implement specific containment measures described in Section 15.6.5.

Employees who have had contact with the spilled materials will report immediately to the decontamination area and undergo decontamination consistent with the extent and nature of the contact.

2.2.2 Notification

The SUXOS will be notified as soon as possible of the location, size and nature of a spill. Appropriate notifications (see Table 14-1) will be made.

As conditions dictate, the SUXOS will declare an emergency, initiate remediation procedures, request assistance from the National Response Center, make the necessary notifications, and initiate a response.

If assistance from the Fire Department Hazardous Materials Unit, Spill Response Team is required, the SUXOS will advise them of any special precautions/procedures in effect and direct them to the location of on-site response supplies and the spill area. A TtECI escort will direct responders' vehicle over clean fill roads to the extent possible in order to minimize contamination.

2.2.3 Rescue of Personnel in the Spill Area

If employees are unable to evacuate themselves from a spill area for any reason, their rescue will be the responders' first priority. Responders will wear the appropriate PPE to conduct rescues, as directed by the UXOSO.

2.2.4 Identification

An attempt will be made to identify spilled material to the extent possible through container markings, physical properties of the material and other available evidence. When doubt exists as to the material's identity, it will be presumed to be hazardous until proven otherwise. Actions will be carried out as though the spilled material is flammable, water reactive, oxidizing, corrosive, and acutely toxic by skin contact or inhalation (material will be presumed to volatilize significantly unless proven otherwise).

At the direction of the UXOSO, samples of the spilled material will be collected for field testing and subsequent laboratory analysis. Field tests may include tests of pH, response by various instruments to the headspace of the sample container (detector tubes, ionization device, combustible indicator, meter, etc.), and tests for combustibility and reactivity. Standard procedures for the safe collection and testing of field samples will be followed. If CWM is suspected of being involved, proper sampling protocols will be followed. Available references will be consulted for guidance and toxicity information when the spilled material is identified.

2.2.5 Demarcation of Hazardous Spill Areas

The following procedures will be implemented to delineate the spill area:

- The area of the spill will be determined and documented.
- The quantity of the material spilled will be estimated and the basis for the estimate will be noted (i.e., remainder in container, direct observation of the spill in progress, etc.).
- The area will be marked with stakes, barrier tape or other means as appropriate.

2.2.6 Spill/Release Reporting

Reporting of all spills or releases to be conducted in accordance with the Tetra Tech EC, Inc. Compliance Procedure for Reporting Spills and Releases. The project Emergency Coordinator is responsible for implementing this procedure. As part of the SSHP review process, the Project Manager is to review Tetra Tech EC, Inc.'s spill/release reporting procedure and inform the client of its requirements to ensure consistency with the client's spill/release reporting protocols.

Following these emergency calls, the remaining personnel listed below shall be notified:

Fort McClellan BEC - Ron Levy	(256) 848-6853
Fort McClellan Transition Force Operations	(256) 848-5178
CEHNC Project Manager – Dan Copeland	(256) 895-1597
CEHNC OE Safety Group	(256) 895-1598 or 1582
USEPA Region IV Hotline	(800) 424-8802
Tetra Tech EC, Inc. Project Manager – Todd Biggs	(256) 529-1213
Tetra Tech EC, Inc. PESM – Steve Neill	(770) 330-7068
Tetra Tech EC, Inc. Regulatory Affairs - Lee Dixon	(617) 457-8258

2.3 FIREFIGHTING PLANS

2.3.1 In Event of Potential or Actual Fire or Explosion

In the event of a fire or explosion in the work zone, personnel shall immediately evacuate the site and then sound an air horn for three 5-second intervals. The Fort McClellan BEC, the CEHNC Safety Group, and the Fort McClellan Transition Force Operations Section will be notified. If appropriate, the fire and police departments and other appropriate response groups shall be notified. The local fire and police department telephone numbers are listed below.

Emergency Telephone Numbers

Contact	Firm or Agency	Telephone Number
Police	Anniston Police Department	(256) 238-1800
Fire	Anniston Fire Department	(256) 237-3541
Ambulance	Anniston Rescue Squad	(256) 237-8572
Hospital	Stringfellow Memorial	(256) 235-8900
BRAC Environmental Coordinator, Mr. Ron Levy	Fort McClellan	(256) 848-6853
USACE Project Manager, Mr. Dan Copeland	USACE	(256) 895-1567
Program Manager, Mr. Art Holcomb	Tetra Tech EC, Inc.	(256) 430-3701
Project Manager, Mr. Todd Biggs	Tetra Tech EC, Inc.	(256) 820-7904
PESM, Steve Neill	Tetra Tech EC, Inc.	(770) 330-7068
Poison Control Center	Poison Control Center	(800) 462-0800
CHEMTREC	CHEMTREC	(800) 424-9300
National Response Center	National Response Center	(800) 424-8802
Fort McClellan Transition Force Operations	Transition Force Operations	(256) 848-5178

2.3.2 Fire Prevention

In the event of a fire or explosion, procedures will include immediately evacuating the site (air horn will sound for three 5-second intervals), and notification of local fire and police departments. No personnel will fight a fire beyond the stage where it can be put out with a portable extinguisher (incipient stage).

Adhering to the following precautions will prevent fires:

- Good housekeeping and storage of materials;
- Storage of flammable liquids and gases away from oxidizers;
- No smoking in the exclusion zone or any work area;
- No hot work without a properly executed hot work permit;
- Shutting off engines to refuel;
- 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; and
- Monthly inspections of all fire extinguishers.

The person responsible for the maintenance of fire prevention and control equipment is the UXOSO.

The person responsible for the control of fuel source hazards is the SUXOS.

2.3.3 Man Overboard

Not applicable to this project.

2.4 HAZARDOUS COMMUNICATION PLAN

2.4.1 Hazard Communication Program/MSDS

The hazard communication program will be maintained on site and training on the program information and requirements will be provided in accordance with 29 CFR 1910.1200 and 1926.59, *Hazard Communication*, 1910.1201, *Retention of DOT Markings, Placards and Labels*, and Tetra Tech EC Corporation Health and Safety Program.

Material Safety Data Sheets (MSDS) will be obtained for applicable substances and included in the site hazard communication file. A copy of the MSDS will be obtained and maintained in the file for all chemicals to which the requirements apply; this will apply to both Tetra Tech EC personnel and any subcontractors for which Tetra Tech EC has responsibility and/or oversight responsibilities. All hazardous material containers will be properly labeled in accordance with the requirements of the applicable standards.

2.5 RESPIRATORY PLAN

A Respiratory Plan is not required for this task order.

2.6 HEALTH HAZARD CONTROL PLAN

The Activity Hazard Analysis is included as Attachment A to this APP

2.7 LEAD ABATEMENT PLAN

A Lead Abatement Plan is not required for this task order.

2.8 ASBESTOS ABATEMENT PLAN

A Asbestos Abatement Plan is not required for this task order.

2.9 CONFINED SPACE ENTRY PLAN

A Confined Space entry Plan is not required for this task order

2.10 HAZARDOUS ENERGY CONTROL PLAN

A Hazardous Energy Control Plan is not required for this task order.

2.11 CRITICAL LIFT PLAN

A Critical Lift Plan is not required for this task order.

2.12 SEVERE WEATHER CONTINGENCY PLAN

In the event of adverse weather conditions, the UXOSO or designee will determine if work can continue without potentially risking the safety of all field workers. Some of the items to be considered prior to determining if work should continue are:

- Potential for heat stress and heat-related injuries;
- Potential for cold stress and cold-related injuries;
- Treacherous weather-related working conditions (hail, rain, high winds);
- Limited visibility (fog);
- Potential for electrical storms;
- Earthquakes; and
- Other major incident.

Weather conditions will be monitored using a handheld weather station, lightning meter and internet weather resources. Weather-driven work stoppages can be a result of information provided by the resources mentioned above or by any personnel that has observed hazardous conditions in the field (e.g. lightning or thunder). Whenever exposure to hazardous weather is imminent, personnel will seek shelter in vehicles until the hazard has ceased to be a hazard to personnel. If the hazard's end is unforeseeable and may result in a workday that no work can be executed, the site superintendent and project manager will consult and decide whether personnel should be dismissed for the workday (lost time to be made up on a later date).

Site activities will be limited to daylight hours, or when suitable artificial light is provided, and acceptable weather conditions prevail. The UXOSO will determine the need to cease field operations or observe daily weather reports and evacuate, if necessary, in case of severe inclement weather conditions.

2.13 ACCESS AND HAUL ROAD PLAN

An Access and Haul Road Plan is not required for this task order.

2.14 BUILDING DEMOLITION PLAN

A Building Demolition Plan is not required for this task order.

2.15 UNDERGROUND FIRE PREVENTION AND PROTECTION PLAN

An Underground Fire Prevention and Protection Plan is not required for this task order.

2.16 COMPRESSED AIR PLAN

A Compressed Air Plan is not required for this task order.

2.17 FORMWORK AND SHORING PLAN

The safety requirements for each excavation must be determined by a competent person who is capable of identifying existing and predictable hazards and work conditions that are unsanitary, hazardous, or dangerous to employees. The competent person must also have the authorization to take prompt corrective measures to eliminate unsatisfactory conditions and stop work if necessary.

The following are general requirements for work activities in and around excavations.

- Prior to initiation of any excavation activity, the location of underground installations will be determined.
- All excavations will be inspected daily by the competent person prior to commencement of work activities. Evidence of cave-ins, slides, sloughing, or surface cracks or excavations will be cause for work to cease until necessary precautions are taken to safeguard employees. The excavation checklist will be utilized by the competent person for inspections.
- Excavated and other materials or equipment that could fall or roll into the excavation shall be placed at least 3 feet from the edge of the excavation.

- All heavy equipment activities will be conducted at least 10 feet from overhead energized electrical lines.
- Surfaces surrounding open trenches and excavations shall have all surface hazards removed.
- Where structural ramps are used for egress they shall be installed in accordance with 29 CFR 1926.651(c)(1).
- Stairways, ladders, or ramps shall be provided as means of egress in all trenches 4 feet or more in depth. Travel distance shall be no more than 25 feet between means of exit.
- When vehicles and machinery are operating adjacent to excavations warning systems such as stop logs or barricades shall be utilized to prevent vehicles from entering the excavation or trench.
- Barriers shall be provided to prevent personnel from inadvertently falling into an excavation.
- Protective systems are required on all excavations over 5 feet in depth or in excavations less than 5 feet when examination of the ground by a competent person reveals conditions that may result in cave-ins.
- Selection and installation of protective systems shall be done in accordance with 29 CFR 1926.652 or the manufacturer's data for shoring and shielding systems. Selection of a protective system shall be made based upon soil classification and job requirements by a competent person. Protective systems and specifications shall be listed on the daily inspection checklist.

2.18 JACKING PLAN

A Jacking Plan is not required for this task order.

2.19 BLASTING PLAN

A Blasting Plan is not required for this task order.

2.20 DIVING PLAN

A Diving Plan is not required for this task order.

2.21 ALCOHOL AND DRUG ABUSE PLAN

TtEC's policy and procedures regarding drug and alcohol abuse can be found in our CRL, under personnel practices section 14. This procedure fulfills the requirements of FAR 23.5, Drug-Free Workplace and the DOE Workplace Substance Abuse Program, DEAR 970.5204-58.

2.22 FALL PROTECTION PLAN

A Fall Protection Plan is not required for this task order

2.23 STEEL ERECTION PLAN

A Steel Erection Plan is not required for this task order.

2.24 NIGHT OPERATIONS LIGHTING PLAN

A Night Operations Lighting Plan is not required for this task order.

2.25 SITE SANITATION PLAN

2.25.1 Water

Sources of potable and non-potable water shall be isolated from each other to prevent cross-contamination.

2.25.2 Potable Water

An adequate supply of potable water shall be provided at the site on a daily basis. Containers used to dispense potable water shall be closed tightly when not in use, shall be equipped with a tap, and shall be labeled with the words "potable water."

2.25.3 Non-Potable Water

Sources of non-potable water, such as water for fire-fighting purposes, shall be clearly identified and shall indicate that the water is unsafe and is not to be used for drinking, washing, or cooking purposes.

2.25.4 Toilet Facilities

At least one toilet facility shall be provided for use in the field. The toilet facility shall be provided with entrance locks controlled from the inside. The type of toilet facility will most likely be a chemical toilet.

2.26 FIRE PREVENTION PLAN

The following rules will be enforced to prevent fires:

- Good housekeeping and storage of materials;
- Storage of flammable liquids and gases away from oxidizers;
- No smoking in the exclusion zone or any work area;

- No hot work without a properly executed hot work permit;
- Shutting off engines to refuel;
- Grounding and bonding metal containers during transfer of flammable liquids;
- Use of Underwriters Laboratory (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.

2.26.1 Fire Protection

The following measures will be used to protect against fires:

- All heavy equipment will be equipped with a fire extinguisher of 10 ABC units or higher.
- Temporary offices will be equipped with a fire extinguisher of 10 ABC units or higher.

2.27 CONTRACTOR INFORMATION

Procedures for meeting the requirements of this APP are outlined in previous sections of this plan and the Tetra Tech EC Corporate Reference Library CRL.

2.28 SITE SPECIFIC HAZARDS AND CONTROLS

2.28.1 Forbidden Practices

The forbidden practices listed below are applicable to all work areas. In addition, no worker may engage in any activity for which the consequences of these actions are unclear without the approval of the UXOSO. If such activities become necessary to complete any phase of the work, the necessary safety and health requirements will be prepared by the UXOSO as an addition to the APP.

The following practices will all be strictly forbidden during any work in restricted access areas:

- Horseplay;
- Fighting;
- Eating;
- Drinking;
- Smoking;
- Chewing gum, tobacco, or any other substances;
- Use of facial cosmetics;
- Climbing on or over obstacles;
- Starting or maintaining an open flame of any type unless authorized by the UXOSO;

- Entering the work site, under any circumstances, by any employee or visitor without prior approval; and
- Work while under the influence of intoxicants, narcotics, or controlled substances is prohibited.

In addition to the forbidden practices, the UXOSO may impose other prohibitions for safe operation. Hazards due to normal site activities can be reduced by using common sense and following the safe practices listed below:

- All equipment will be used only by authorized personnel familiar with its use;
- Safety devices on equipment will be left intact and used as designed;
- Equipment and tools will be kept clean and in good repair and used only for their intended purpose;
- Good housekeeping practices will be followed; and
- Use of chemicals will be limited to authorized personnel familiar with their use and associated hazards.

2.28.2 Heavy Equipment Operation

Heavy equipment will be operated under the following conditions:

- The operation of heavy equipment will be limited to authorized personnel specifically trained in its operation.
- The operator will use the safety devices provided with the equipment, including seat belts. Backup warning indicators and horns will be operable at all times.
- While in operation, all personnel not directly required in the area will keep a safe distance from the equipment.
- Personnel directly involved in activity will avoid moving in the path of operating equipment or any portion thereof. Areas blinded from the operator's vision will be avoided. Spotters will be used when personnel may be in areas where the operator's view is obstructed.
- Additional riders will not be allowed on equipment unless it is specifically designed for that purpose.

2.29 HOUSEKEEPING

Housekeeping procedures contained herein pertain to uncontaminated trash, debris, and rubbish. The following housekeeping rules will apply at the job site:

- Work areas must be kept clean and free from trash and debris. Trash containers must be located throughout the job site.
- Excess scrap material and rubbish must be removed from the work area.

- All surplus materials must be returned to a designated area of the site at the completion of a job.
- Tools and materials must be put in toolboxes or returned to the tool room after use to avoid creation of a hazard for others.
- Oily rags must be placed in approved non-combustible type metal containers.
- Toilets, wash up facilities, and drinking fountains (if needed) must be kept clean and sanitary; problems must be reported to the supervisor.
- PPE will be returned to the designated area at the end of the work period and will be placed in designated receptacles.
- Eating, drinking, use of tobacco products, chewing gum, etc., is permitted only in designated break areas. These activities are not permitted in change or shower areas, toilet facilities, etc.

2.29.1 Illumination

All study areas included in this work plan are located outdoors. Illumination requirements shall be met on a daily basis by beginning work no earlier than one-half hour after sunrise and ending work no later than one-half hour before sunset. No work will be performed at night or during inclement weather.

2.29.2 The Buddy System

The buddy system is a safety practice in which each individual is concerned with the health and well being of coworkers. The buddy system will be implemented during all on-site activities and will be incorporated whenever workers may be isolated or as determined by the UXOSO. Two-way radio communication will be established when deemed necessary by the UXOSO.

2.29.3 Hand and Power Tools

Hand and power tools can present many hazards including: flying objects and particles, cuts and punctures, having a body part caught in or between, electrocution, noise, fire and explosion, and exposure to vapors, aerosols, and dusts from exhaust. The following protective measures will be implemented to minimize exposure to the hazards presented by the use of hand and power tools:

- Daily inspections of each tool prior to use;
- Remove broken or damaged tools;
- Use of personal protective equipment;
- Use in accordance with the Operator's Manual;
- Use the tool for its intended purpose;
- No throwing tools;
- Ensure proper guards are in place and not removed or bypassed;

- Turn off tools while fueling;
- All electrical tools UL listed or double insulated;
- Inspect all cords for frays or worn sections;
- Do not use electric cords to lower or hoist tools;
- Protect cords from traffic areas and water; and
- Use a ground fault circuit interrupter outside at all times.

2.29.4 Safe Lifting Practices

As back injuries are the most common type of injury, it is important for employees to follow safe lifting practices. Tetra Tech EC, Inc.'s Corporate Health and Safety policy states that individual employees are not to lift loads greater than 50 pounds. The following procedure should be used to lift anything, particularly heavier loads, safely:

- Size up the load as to its weight, size and shape;
- Place the feet about a foot apart and close to the object for good balance;
- Bend the knees to a comfortable position and get a good handhold;
- Using both leg and back muscles, lift the load straight up, smoothly and evenly. Pushing with the legs, keep the load close to the body;
- Lift the object into carrying position, avoiding twisting movements until the lift is completed;
- Turn the body with changes of foot position, making sure the path of travel is clear; and
- Using both leg and back muscles, comfortably lower the load by bending the knees. When the load is securely in place, release the grip. Setting down the load is just as important as picking it up.

The same steps apply to team lifting, with the emphasis on coordination. All should start and finish the lift action at the same time and perform turning movements together.

3.0 SITE SAFETY AND HEALTH PLAN

3.1 SITE DESCRIPTION AND CONTAMINATION CHARACTERIZATION

The site description and characterization of the potential contamination for each area of investigation will be included in the SSHP addendum to be developed for each project.

3.2 HAZARD ANALYSIS AND RISK ASSESSMENT

The potential hazards associated with the site activities include chemical hazards [CWM (Chemical Warfare Materials), OE (Ordnance and Explosives)], physical hazards, and biological hazards. The potential for encountering various hazards will depend on the work being conducted and the location of the work area. The potential for encountering physical hazards is dependent upon the work activity being performed (intrusive or non-intrusive) and the location of that activity. Physical hazards such as heat stress, noise and other physical hazards due to motor vehicle operation, the use of heavy equipment, power tools, and etc. will be present depending upon the work being performed. Biological hazards may be present depending on time of year.

3.2.1 Chemical Hazards

Tetra Tech EC, Inc. personnel will not enter any area containing or suspected of containing CWM materials. Areas suspected of containing CWM materials will be investigated by the CWM contractor. Once an area has been certified free of CWM material, Tetra Tech EC, Inc. personnel could investigate for potential MEC contamination. In the event of CWM material discovery all personnel will evacuate the area immediately in an upwind direction. The SUXOS will notify Tetra Tech EC, Inc. Command Center and the CEHNC Safety Representative. Tetra Tech EC, Inc. MEC personnel will standby the area until response elements arrive on scene or until directed by the CEHNC safety representative. The Tetra Tech EC, Inc. Command Center will notify the Fort McClellan Transition Force Operations and other personnel listed in Section 2.2.6 of this APP as required.

3.2.2 Activity Hazard Analysis

Activity Hazard Analyses (AHAs) will be developed for each major phase of work planned to take place at Fort McClellan. The AHAs take into account their hazards and their control measures. AHAs will be developed and included in the SHP. Additional AHAs will be developed by the UXOSO, or designee, for all unanticipated phases of work and shall be approved by the PESM prior to working on a new task. The AHAs will be used to instruct crews on the hazards of the associated activities during a phase preparatory meeting prior to commencement. Standard AHAs (mobilization, surface sweeps, geophysics, intrusive, etc.) are provided on the in Attachment A to this APP.

3.3 PERSONNEL AND EQUIPMENT DECONTAMINATION

3.3.1 Contamination Avoidance

If in the normal daily operations, workers come in contact with contaminated soil or other material the guidance below will be followed. One of the most important aspects of decontamination is the prevention of contamination. Good contamination prevention should minimize worker exposure and help ensure valid sample results by precluding cross-contamination. During completion of all site activities, personnel should attempt to minimize the degree of contact with contaminated materials. This involves a conscientious effort to keep "clean" during site activities. All personnel should minimize kneeling, splash generation, and other physical contact with contamination. This may ultimately minimize the degree of decontamination required and the generation of waste materials from site operations.

Procedures for contamination avoidance are presented in the following sections. These are applicable when chemical contamination has been encountered:

3.3.2 Sampling/Monitoring Equipment

- When required by the UXOSO, cover the instruments with clear plastic, leaving openings for sampling ports; and
- Bag sample containers prior to placement of sample material.

3.3.3 Personnel

- Do not walk through areas of obvious or known contamination;
- Do not directly handle or touch contaminated materials;
- Make sure that there are no cuts or tears on PPE;
- Fasten all closures in suits, covering with tape, if necessary;
- Particular care should be taken to protect any skin injuries;
- Stay upwind of airborne sources; and
- Do not carry cigarettes, cosmetics, gum, etc., into contaminated areas.

3.3.4 Personnel Decontamination Sequence

Consideration will be given to prevailing wind directions so that the decontamination line, the SZ, and contamination reduction zone exit is upwind from the EZ and the first stations of the decontamination line.

Personnel and equipment leaving the EZ shall be thoroughly decontaminated. The following protocol shall be used for the decontamination stations according to levels of protection:

Level D	Level D+	Level C	Level B
1. Equipment drop	1. Equipment drop	1. Equipment drop	1. Equipment drop
2. Hand/Face wash	2. Outer boot & glove wash	2. Outer boot & glove wash	2. Outer boot & glove wash
	3. Outer boot & glove rinse	3. Outer boot & glove rinse	3. Outer boot & glove rinse
	4. Tape removal - boot & glove	4. Tape removal - boot & glove	4. Tape removal - boot & glove
	5. Outer boot & glove removal/disposal	5. Outer boot & glove removal/disposal	5. Outer boot & glove removal/disposal
	6. Coverall removal/disposal	6. Coverall removal/disposal	6. SCBA or escape tank removal
	7. Inner glove removal/disposal	7. Respirator removal	7. Coverall removal/disposal
	8. Hand/Face wash	8. Inner glove removal/disposal	8. SCBA or ALR face shield removal
		9. Inner clothing removal	9. Inner glove removal/disposal
		10. Hand/Face wash	10. Inner clothing removal
		11. Respiratory cleaning/sanitizing	11. Hand/Face wash
			12. Respiratory cleaning/sanitizing

Note: At a minimum, all personnel will thoroughly wash their arms, face, and hands upon exiting the EZ or CRZ prior to eating, drinking, smoking, applying cosmetics, or any other actions that would increase the risk of hand to mouth transfer of contaminants.

The following decontamination equipment is required for work that requires a wet decon for level D+ and higher protection levels:

- Four small tubs (two sets of wash and rinse water), scrub brush, towels, contaminated clothing disposal bag or drum, and, respiratory protective equipment cleaning solution.
- Non-phosphate detergent (i.e., Dove) and water should be sufficient for use as the decontamination solution. All receptacles for contaminated protective clothing will be equipped with lids that can be closed to prevent the release of contaminants and the collection of rainfall. The decontamination liquids and clothing will be contained and disposed according to federal, state and local regulations.

3.3.5 Emergency Decontamination

Emergency decontamination will include the following stations.*

Level D	Level D+	Level C	Level B
1, 2 as referenced above	1, 4, 5, 6, 7, 8 as referenced above	1, 4, 5, 6, 7, 8, 9, 10 as referenced above	1, 4, 5, 6, 7, 8, 9, 11 as referenced above

Note: If circumstances dictate that contaminated clothing cannot be readily removed, then remove gross contamination, wrap injured personnel with clean garments/blankets to avoid contaminating other personnel or transporting equipment.

If the injured person can be moved, he/she will be moved to the exclusion zone boundary and deconned by site personnel as described above before emergency responders handle the victim. If the person can not be moved because of the extent of the injury (a back or neck injury) then polyethylene will be laid down over the work surface and around the victim to allow a clean pathway for response personnel to access the victim. If the potential for inhalation hazards exist, such as with open excavation, this area will be covered with poly to eliminate any potential inhalation hazards.

All emergency personnel are to be immediately informed of the injured person's condition, potential contaminants, and provided with all pertinent chemical data.

3.3.6 Protection Required for Decontamination Personnel

Personnel assisting with decontamination will wear the same level of protection as those they are decontaminating, or one level below, depending on the stage of decontamination that they are assisting. Assistants who are stationed at the first stages of decontamination will be in the same level of protection as those being assisted. At stages where the outer garments are already removed and containerized, the decontamination assistants will wear the lower level of protection.

3.3.7 Hand Held Equipment Decontamination

Hand held equipment includes all monitoring instruments, samples, hand tools, and notebooks. The hand held equipment is dropped at the first decontamination station to be decontaminated by one of the decontamination team members. These items must be decontaminated or discarded as waste prior to removal from the exclusion zone.

To aid in decontamination, monitoring instruments can be sealed in plastic bags or wrapped in polyethylene. This will also protect the instruments against contaminants. The instruments will be wiped clean using wipes or paper towels if contamination is visually evident.

3.4 WASTE DISPOSAL PROCEDURES

All discarded materials, waste materials or other objects shall be handled in such a way as to preclude the potential for spreading contamination, creating a sanitary hazard or causing litter to be left on site. All potentially contaminated materials (e.g., clothing, gloves, etc.) will be bagged or drummed as necessary, labeled and segregated for disposal. All non-contaminated materials shall be collected and bagged for appropriate disposal as non-hazardous solid waste.

Soils removed from the trench excavation will be staged for subsequent monitoring and characterization prior to proper containerization for storage and transportation for disposal. Solids and liquids from decontamination will be segregated by type and placed into separate drums. Plastic from the decontamination pad will be placed into a separate drum. All drums will be labeled with the following information:

- Date of waste generation;
- Type of waste contained in the drum;

- Specific source of the waste;
- The words “Non-hazardous waste - Awaiting analysis”; and
- Emergency contact with telephone number.

Waste management is addressed in Section 13, Investigation Derived Waste Management Plan, of the General Site-Wide WP.

3.4.1 Overt Personnel Exposure

The following are standard procedures to treat chemical exposures. Other, specific procedures detailed on the Material Safety Data Sheet or recommended by the Corporate Medical Consultant will be followed, when necessary.

SKIN AND EYE CONTACT: Use copious amounts of soap and water. Wash/rinse affected areas thoroughly, and then provide appropriate medical attention. Eyes should be rinsed for 15 minutes upon chemical contamination. Skin should also be rinsed for 15 minutes if contact with caustics, acids or hydrogen peroxide occurs.

INHALATION: Move to fresh air. Decontaminate and transport to hospital or local medical provider.

INGESTION: Decontaminate and transport to emergency medical facility.

PUNCTURE WOUND OR LACERATION: Decontaminate and transport to emergency medical facility.

3.4.2 Decontamination during Medical Emergencies

If emergency life-saving first aid and/or medical treatment is required, normal decontamination procedures may need to be abbreviated or delayed. The UXOSO or designee will accompany contaminated victims to the medical facility to advise on matters involving decontamination, when necessary. The outer garments can be removed if they do not cause delays, interfere with treatment or aggravate the problem. Respiratory equipment must always be removed. Protective clothing can be cut away. If the outer contaminated garments cannot be safely removed on-site, a plastic barrier placed between the injured individual and clean surfaces should be used to help prevent contamination of the inside of ambulances and/or medical personnel. Outer garments may then be removed at the medical facility. No attempt will be made to wash or rinse the victim if his/her injuries are life threatening, unless it is known that the individual has been contaminated with an extremely toxic or corrosive material which could also cause severe injury or loss of life to emergency response personnel. For minor medical problems or injuries, the normal decontamination procedures will be followed.

3.4.3 In Event of Potential or Actual CWM Encountered

If CWM is encountered, work activity in that area will cease, the Fort McClellan BEC, the CEHNC OE Safety Group and the Fort McClellan Transition Force Operations Section will be notified. Security shall be immediately established and maintained until military authorities arrive and assume custody.

3.5 RADIOLOGICAL AND CHEMICAL WARFARE MATERIEL (CWM)

No CWM operations are expected at this time. If future operations are planned in areas where CWM is expected, additional plans will be prepared and included in this document.

In the event of CWM material discovery all personnel will evacuate the area immediately in an upwind direction. The SUXOS will notify the Tetra Tech EC, Inc. Command Center and the CEHNC Safety Representative. Tetra Tech EC, Inc. MEC personnel will standby the area until response elements arrive on scene or until directed otherwise by the CEHNC Safety Representative. The Tetra Tech EC, Inc. Command Center will notify Fort McClellan Transition Force Operations Center and other personnel listed in Appendix C as required.

4.0 SITE DESCRIPTION AND CONTAMINATION CHARACTERIZATION

4.1 HAZARD/RISK ANALYSIS

The potential hazards associated with the site activities include chemical hazards [CWM (Chemical Warfare Materiels), OE (Ordnance and Explosives)], physical hazards, and biological hazards. The potential for encountering various hazards will depend on the work being conducted and the location of the work area. The potential for encountering physical hazards is dependent upon the work activity being performed (intrusive or non-intrusive) and the location of that activity. Physical hazards such as heat stress, noise and other physical hazards due to motor vehicle operation, the use of heavy equipment, power tools, and etc. will be present depending upon the work being performed. Biological hazards may be present depending on time of year.

Activity Hazard Analyses (AHAs) will be developed for each major phase of work planned to take place at Fort McClellan. The AHAs take into account their hazards and their control measures. AHAs will be developed and included in the APP addenda. Additional AHAs will be developed by the UXOSO, or designee, for all unanticipated phases of work and shall be approved by the PESM prior to working on a new task. The AHAs will be used to instruct crews on the hazards of the associated activities during a phase preparatory meeting prior to commencement. Standard AHAs (mobilization, surface sweeps, geophysics, intrusive, etc.) are provided in Attachment 6-11.

4.1.1 Classic Safety

The Activity Hazard Analysis (AHA's) will evaluate the potential for injury and mitigation solutions for all site conditions.

4.1.2 Explosive Ordnance and Explosives

The areas where work will be conducted may contain MEC; there also is a possibility that personnel may encounter ordnance-related items (small arms, cartridges, etc.). Only MEC trained personnel are authorized to handle OE material.

The hazards presented by MEC have the potential to kill or cause serious injury if improperly handled. Operations involving MEC are inherently dangerous and require strict adherence to safe practices, safety procedures, and positive control of personnel. Due to the variety of ordnance items that may be encountered all site workers must be vigilant in identifying hazards in the work place and bringing them to the attention of supervisory personnel. As additional hazards are identified, protective measures will be implemented. For the geophysical investigation, surface inspection and sweep using a magnetometer will be performed at each of the investigation grids by the SUXOS prior to the investigation to be conducted by the geophysicists. For the surface/subsurface investigation, the field personnel shall follow the field procedures and safety concepts/considerations specified in the MEC Safety Precautions.

4.1.3 Chemical

Tetra Tech EC, Inc. personnel will not enter any area containing or suspected of containing CWM materials. Areas suspected of containing CWM materials will be investigated by the CWM EE/CA contractor. Once an area has been certified free of CWM material, Tetra Tech EC, Inc. personnel could investigate for potential OE contamination. In the event of CWM material discovery all personnel will evacuate the area immediately in an upwind direction. The SUXOS will notify Tetra Tech EC, Inc. Command Center and the CEHNC Safety Representative. Tetra Tech EC, Inc. UXO personnel will standby the area until response elements arrive on scene or until directed by the CEHNC safety representative. The Tetra Tech EC, Inc. Command Center will notify the Fort McClellan Transition Force Operations and other personnel listed in Appendix C as required.

4.1.4 Physical

4.1.4.1 Heat Stress

Heat stress is a significant potential hazard, which is greatly exacerbated with the use of PPE, in hot environments. The potential hazards of working in hot environments include dehydration, cramps, heat rash, heat exhaustion, and heat stroke.

4.1.4.2 Cold Stress

Workers may be exposed to the hazard of working in a cold environment. Potential hazards in cold environments include frostbite, trench foot or immersion foot, hypothermia, as well as slippery surfaces, brittle equipment, poor judgment, and unauthorized procedural changes.

4.1.4.3 Equipment Safety

The work activities planned for this project present physical hazards that are inherent to working around heavy equipment (e.g., potential for “struck by,” “caught between,” noise). Various types of heavy equipment will be utilized during work conducted at Fort McClellan. Working with and near heavy equipment poses many potential hazards that can result in serious physical harm. Prior to the start of on-site equipment operations, all personnel will be briefed on the potential hazards posed by these operations. Good, common-sense safety practices and personal awareness will be necessary to reduce the possibilities for injuries.

4.1.4.4 Hand and Power Tools

In order to complete the various tasks for the project, personnel may utilize hand and power tools. The use of hand and power tools can present a variety of hazards, including physical harm from being struck by flying objects, being cut or struck by the tool, fire, and electrocution.

4.1.4.5 Noise

Noise is a potential hazard associated with the operation of heavy equipment, detonations, power tools, pumps and generators. Excessive noise presents two potential problems at the site. First, it hinders communication between workers. Second, excessive noise exposures (to both continuous and impact noise) can have adverse effects on a person's hearing. These adverse effects include both temporary and permanent hearing damage.

4.1.4.6 Traffic/Public

When working in a traffic area, orange traffic vests will be worn if the area is not zoned off with cones and tape. Also, due to the general curiosity of the public, Tetra Tech EC personnel shall be diligent in their efforts to prevent the public from entering any zone by maintaining alertness and by verbal warnings. In addition, barricades and caution tape will be utilized in each grid. Air horns may also be used as a first alert followed by person to person communication. If any unauthorized individual does enter a zone, then work shall cease until the person has been escorted out of the zone.

4.1.4.7 Fire and Explosion

In most cases involving ordnance, accidental ignition and explosions are caused by some type of movement. It is imperative to positively identify ordnance by type and function prior to any movement. Ordnance should also be isolated from ignition sources to reduce the possibility of an explosion or fire. Also, when conducting heavy equipment operations, the potential of encountering fire and explosion hazards exists from underground/overhead utilities and gases. Additionally, the use of the engine on the heavy equipment could present the possibility of encountering fire and explosion hazards.

4.1.4.8 Slips, Trips and Falls

Working in and around the site will pose slip, trip and fall hazards due to slippery surfaces that may be covered, or from surfaces that are wet from rain, steam cleaning fluids, or water. Slips, trips and falls are a leading cause of injuries in field-related work settings, therefore, a concerted effort to identify, control, and eliminate these hazards and the measures needed to reduce or eliminate the possibility of injury will be communicated to all site personnel. Potential adverse health effects include falling to the ground and becoming injured or twisting an ankle.

4.1.4.9 Manual Lifting

Manual lifting of heavy objects may be required. Failure to follow proper lifting technique can result in back injuries and strains. Back injuries are a serious concern as they are the most common workplace injury, often resulting in lost or restricted work time, and long treatment and recovery periods.

4.1.4.10 Electrical Hazards

Overhead power lines and downed electrical wires all pose a danger of shock or electrocution if workers contact or sever them during site operations. Electrical equipment and extension cords used on-site may also pose a hazard to workers. Potential adverse effects of electrical hazards include burns and electrocution, which could result in death.

4.1.4.11 Excavation Operations

The UXOSO and a competent person will be present on site during excavation operations over four feet and will provide oversight to ensure that appropriate levels of protection and safety procedures are utilized. This UXOSO must be an MEC-trained person. The existence and/or proximity of chemical, water, sewer, and electrical lines will be established prior to the commencement of any intrusive activities. An excavation checklist is provided in Appendix F. No excavations will be greater than ten feet deep. All excavation operations will be conducted in accordance with the requirements of 29 CFR 1926, Subpart P; EM 385-1-1, Section 25; and Tetra Tech EC, Inc. Procedure EHS 6-3. The selection and design of personal protective system to be used will be done by the designated competent person.

4.1.4.12 Steam, Heat, Splashing

Exposure to steam/heat/splashing hazards can occur during steam cleaning operations, decontamination or sampling activities. Contact with steam/heat/splashing hazards can cause scalding/burns, eye injury, and puncture wounds.

4.1.4.13 Ionizing Radiation

Not anticipated for this project.

4.1.4.14 Biological

The following may be present at the site. The UXOSO will instruct the field crew in the recognition and procedures for encountering biological hazards at the site.

4.1.4.15 Insect Bites and Stings

Insects, including bees, wasps, hornets, and spiders, will be present at this site making the chance of a bite 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 should notify the UXOSO who have been bitten or stung by an insect. The following is a list of preventive measures:

- Apply insect repellent prior to fieldwork and or 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 light colored pants).

- When walking in wooded areas, avoid contact with bushes, tall grass, or brush as much as possible.
- Field personnel who may have insect allergies should provide this information to the UXOSO prior to commencing work, and shall have allergy medication on site.

The UXOSO will instruct the field crew in the recognition and procedures for encountering poisonous insects at the site.

4.1.4.16 Lyme Disease

Lyme disease is caused by infection from a deer tick that carries a spirochete. During the painless tick bite, the spirochete may be transmitted into the bloodstream, which could lead to the worker contracting Lyme disease.

Lyme disease may cause a variety of medical conditions including arthritis, which can be treated successfully if the symptoms are recognized early and medical attention is received. Treatment with antibodies has been successful in preventing more serious symptoms from developing. Early signs may include a flu-like illness, an expanding skin rash and joint pain. If left untreated, Lyme disease can cause serious nerve or heart problems as well as a disabling type of arthritis.

Symptoms can include a stiff neck, chills, fever, sore throat, headache, fatigue and joint pain. This flu-like illness is out of season, commonly happening between May and October when ticks are most active. A large expanding skin rash usually develops around the area of the bite. More than one rash may occur. The rash may feel hot to the touch and may be painful. Rashes vary in size, shape, and color, but often look like a red ring with a clear center. The outer edges expand in size. It's easy to miss the rash and the connection between the rash and a tick bite. The rash develops from three days to as long as a month after the tick bite. Almost one third of those with Lyme disease never get the rash.

Joint or muscle pain may be an early sign of Lyme disease. These aches and pains may be easy to confuse with the pain that comes with other types of arthritis. However, unlike many other types of arthritis, this pain seems to move or travel from joint to joint.

Lyme disease can affect the nervous system. Symptoms include stiff neck, severe headache, and fatigue usually linked to meningitis. Symptoms may also include pain and drooping of the muscles on the face, called Bell's Palsy. Lyme disease may also mimic symptoms of multiple sclerosis or other types of paralysis.

The disease can also cause serious but reversible heart problems, such as irregular heartbeat. Finally, Lyme disease can result in a disabling, chronic type of arthritis that most often affects the knees. Treatment is more difficult and less successful in later stages. Often, the effects of Lyme disease may be confused with other medical problems.

It is recommended that personnel check themselves when in areas that could harbor deer ticks, wear light color clothing and visually check themselves and their buddy when coming from wooded or vegetated areas. If a tick is found biting an individual, the UXOSO should be

contacted immediately. The tick can be removed by pulling gently at the head with tweezers. The affected area should then be disinfected with an antiseptic wipe. The employee will be offered the option for medical treatment by a physician, which typically involves prophylactic antibiotics. If personnel feel sick or have signs similar to those above, they should notify the UXOSO immediately.

4.1.4.17 Wild Animals

During the conduct of site operations, wild animals such as stray dogs or cats, raccoons, and mice may be encountered. Workers shall use discretion and avoid all contact with wild animals. If these animals present a problem, efforts will be made to remove these animals from the site by contacting a licensed animal control technician.

4.1.4.18 Snake Bites

Various reptiles, including poisonous snakes, may potentially be encountered at Fort McClellan. Various species of rattlesnake, along with copperheads and cottonmouths (water moccasins) may be encountered. Cottonmouths are semi-aquatic and typically found only near or in bodies of water (swamps, lakes, ponds, streams and/or rivers). All other of the species mentioned are typically found in more upland areas.

If bitten by a snake, try to remain calm, keep the affected area below the level of the heart and walk (do not run) to the nearest support zone for assistance. The UXOSO will immediately transport the victim to the closest medical facility for treatment or send for appropriate medical assistance, whichever is faster.

The following precautions should be used when working in areas potentially containing snakes:

- Wear appropriate protective equipment (work boots, snake chaps, etc.);
- Be alert and aware of your surrounding;
- Avoid walking in wooded areas, heavy brush, or tall grass if possible;
- If a snake is encountered, do not attempt to catch or kill it.

4.1.4.19 Plants

The potential for contact with poisonous plants exists when performing fieldwork in undeveloped and wooded areas. Poison ivy, sumac, and oak may be present on site. Poison ivy can be found as vines on tree trunks or as upright bushes. Poison ivy consists of three leaflets with notched edges. Two leaflets form a pair on opposite sides of the stalk, and the third leaflet stands by itself at the tip. Poison ivy is red in the early spring and turns shiny green later in the spring. Poison sumac can be present in the form of a flat-topped shrub or tree. It has fern-like leaves, which are velvety dark green on top and pale underneath. The branches of immature trees have a velvety "down." Poison sumac has white, "hairy" berry clusters. Poison oak can be present as a sparingly branched shrub. Poison oak is similar to poison ivy in that it has the same leaflet configuration, however, the leaves have slightly deeper notches.

Contact with poison ivy, oak, or sumac may lead to a skin rash in susceptible individuals. Rashes result from a toxin found in the sap which is extruded from the leaves and contained in the stems and roots. The rash is characterized by reddened, itchy, blistering skin which needs first aid treatment. If you believe you have contacted one of these plants, immediately wash skin through with soap and water, taking care not to touch your face or other body parts.

Employees will be trained in the identification of these species and will be advised to wear protective clothing such as gloves and long sleeve shirts where working conditions permit. Employees should also consider applying barrier lotions to the skin that has potential to contact these species.

4.2 STAFF ORGANIZATION, QUALIFICATIONS, AND RESPONSIBILITIES

The responsibilities of the health and safety staff are described in the following sections.

4.2.1 Project Manager (PM)

It is the responsibility of the PM to:

- Assume overall project responsibility for health and safety;
- Ensure proper implementation of the health and safety program through coordination with the assigned Senior UXO Supervisor (SUXOS) and the PESM;
- Conduct quarterly inspections jointly with the PESM;
- Conducts monthly (H&S) inspections or delegate this responsibility to the SUXOS when not able to conduct the inspection in person;
- Participate in major incident investigations;
- Ensure the APP has all the required approvals before any site work is conducted;
- Ensure that the PESM and UXOSO are informed of project scope changes that require modifications of the APP; and,
- Ensure adequate resources are provided to the field staff to carry out their responsibilities as outlined below.

4.2.2 TtECI UXO Safety Manager / Project Environmental Safety Manager (PESM)

It is the responsibility of the UXO SAFETY MANAGER to:

- Provide for the development and approval of the APP;
- Serve as the primary contact to review health and safety matters that may arise;
- Approve revised or new safety protocols for field operations;
- Approve the assignment of individuals charged with UXOSO responsibilities;
- Approve the UXOSO to fulfill other project roles;

- Coordinate revisions of this APP with field personnel;
- Coordinate upgrading or downgrading of personal protective equipment with the UXOSO;
- Oversee and approve the Emergency Response/ Contingency Plan (ERCP) and perform audits to determine that the plan is in effect and all pre-emergency requirements are met;
- Act as a liaison to applicable regulatory agencies and notify OSHA of reportable accidents and fatalities;
- Notify the Occupational Safety and Health Administration (OSHA) if an accident/incident results in an OSHA reportable (i.e. three or more workers hospitalized or a fatality);
- Assist in the investigation of major accidents; and,
- Conduct quarterly inspections for compliance with the APP.

4.2.3 Senior UXO Supervisor (SUXOS)

It is the responsibility of the SUXOS to:

- Act as the Field Team Leader for the MEC investigation;
- Act as primary emergency coordinator;
- Ensure site personnel comply with the APP;
- Maintain overall direct supervisory responsibility for all project-specific ordnance-related operations/ procedures;
- Coordinate with the UXOSO on matters regarding MEC or related items;
- Halt or modify any work conditions or remove personnel from the task site if the conditions are unsafe;
- Ensure all site personnel understand and comply with all MEC safety requirements;
- Monitor UXO Team Leader and team member performance including safety and quality control;
- Implement and enforce all work plans related to MEC operations;
- Conduct daily activities such as: supervising employees in site-specific MEC operations, oversee the implementation of specified levels of personal protective equipment, identify potential problem areas and make corrective action recommendations to the PM, implement all corrective actions, and maintain a daily log of work activities including notations of any extraordinary occurrences;
- Conduct weekly health and safety inspections;
- Conduct monthly health and safety inspections when delegated by the PM;
- Conduct incident investigations;

- Initiate corrective actions for observed safety violations;
- Assist the UXOSO with the daily safety briefing.

4.2.4 UXO Site Safety Officer (UXOSO)

It is the responsibility of the UXOSO to:

- Work as a member of the project team to ensure proper implementation of this APP;
- Ensure that all health and safety activities identified in this APP are conducted and/or implemented;
- Identify operational changes that require modifications to health and safety procedures and the APP, and ensure the procedure modifications are implemented and documented through changes to the APP;
- Conduct daily informal inspections;
- Direct and coordinate health and safety monitoring activities;
- Ensure site personnel are trained in the proper use of personal protective equipment (PPE);
- Ensure field teams utilize proper personal protective equipment;
- Assist in conducting daily safety briefings;
- Conduct and document inspection of equipment brought on site;
- Monitor compliance with this APP;
- Notify the SUXOS and UXO Safety Manger of all accidents/ incidents by email or phone call the day of the accident/ incident;
- Ensure all personnel are evacuated safely and that machinery and processes are shut down or stabilized in the event of a stop work order or evacuation;
- Complete (and forward to the UXO Safety Manger) the Incident Report for all OSHA recordable injuries, fires, spills, release, or equipment damage in excess of \$500 within 24 hours;
- Coordinate with the TtECI PM and UXO Safety Manger in any incident investigation;
- Maintain Accident/Incident Report Form and Investigation Report;
- Determine upgrades/downgrades of PPE based on site conditions and/or monitoring;
- Ensure monitoring instruments are calibrated before use (if required);
- Provide weekly summaries of field operations and progress reports to the UXO Safety Manger;
- Maintain health and safety field logbooks;
- Provide safety advice to the SUXOS accident/incident responses;

- Prepare and submit weekly and monthly Health and Safety Inspection reports in coordination with the SUXOS and/or the PM and send the monthly reports to the UXO Safety Manger;
- Review and approve/reject the results of inspection of all heavy equipment for use on site; and
- Prepare new Activity Hazard Analyses (AHAs) (as required) and periodically review the AHAs for accuracy and compliance.

4.2.5 Field Crew Personnel

Field crew personnel include all other persons entering the site for the purpose of assisting in the completion of the ordnance-related project tasks or working in areas where these tasks are being conducted. These persons include, but are not limited to geophysicists, client representatives, subcontractors, regulatory personnel and site workers. It is their responsibility to:

- Report any unsafe or potentially hazardous conditions to the UXOSO;
- Maintain knowledge of the information, instructions, and emergency response actions contained in this APP;
- Comply with rules, regulations and procedures set forth in this APP;
- Notify the UXOSO of an accident/incident; Initiate an Incident Report when involved in an incident/accident, if able to do so.
- Prevent admittance to work sites by unauthorized personnel. If the unauthorized persons refuse to leave, the field crew personnel shall cease operations and notify the SUXOS who will notify the local police department and request their assistance in removal of unauthorized personnel from the project site;
- Inspect all tools and equipment daily prior to use, including PPE;
- Assist the UXOSO with implementation of and compliance with the APP; and,
- Operate equipment (heavy equipment, power tools, vehicles, etc.) in accordance with (IAW) the manufacturer's recommendations, the UXOSO and the appropriate AHAs.

4.3 TRAINING

4.3.1 General

Documentation of training requirements is the responsibility of each employer. Written documentation verifying compliance of training and medical requirements must be submitted to the UXOSO before entering the exclusion or reduction zones and will be kept on site. Subcontractors will provide the required copies of training certificates and clearances prior to beginning fieldwork. No one will be allowed to work in an exclusion zone without the appropriate training and medical clearances. Access to these records will be afforded government personnel to confirm training status.

4.3.2 Supervisors

On site supervisors will comply with the 8-hour supervisory training requirements of OSHA 29CFR 1910.120 and the UXOSO will comply with EM 385-1-1 requirement for the OSHA 10-hour Construction EHS Safety training course

4.3.3 Project Specific

4.3.3.1 PPE

The PPE specified in this plan is based upon the hazard analysis and PPE selection required by 29 CFR 1910.132. For the purposes of PPE selection, the PESM and UXOSO are considered competent persons. The signatures on the approval page of this EHSP constitute certification of the hazard assessment that has been conducted. The initial levels of protection were selected by performing a hazard assessment taking into consideration the following criteria:

- Potential chemical and physical hazards present or suspected;
- Published exposure limits (OSHA and ACGIH);
- Work activities to be performed;
- Potential routes of exposure; and
- Characteristics, capabilities, and limitations of PPE, and any hazards that the PPE presents or magnifies.

There is not expected to be any exposure to chemical hazards [hazardous, toxic, or radiological waste (HTRW)] on Fort McClellan. Contamination of an area will typically have some visual (e.g., empty drums, stained soil, lack of foliage) and/or odoriferous indications. Potential hazards can be minimized or eliminated through good work practices, PPE requirements, and personal hygiene and other contamination control measures.

For activities not covered, the UXOSO will conduct the hazard assessment and select the PPE. The completed hazard assessment and resulting decisions regarding PPE will be documented on a field change request form, which will be submitted to the PESM. The PESM will certify the assessment by signing the field change request. PPE selection will be made in consultation with the PESM. Modifications for initial PPE selection may also be made by the UXOSO in consultation with the PESM using the same form. A written justification for major downgrades will be provided to the PESM for approval on a field change request form.

It should be noted that this APP makes provisions for adjustment of protection levels. The type of equipment used and the overall level of protection should be reevaluated periodically as the amount of information about the work activity and site increases and as workers are required to perform different tasks. The level of protection appropriate for the tasks and working conditions will be determined by the PESM. Protection levels may be upgraded or downgraded based on physical conditions (e.g., generation of dust) on site. Changes in protection levels will be made in accordance with the following criteria:

Reasons to Upgrade PPE:

- Known or suspected presence of dermal hazards.
- Occurrence or likely occurrence of gas or vapor emission.
- Change in a work task that will increase contact or potential contact with hazardous materials.
- Request of the individual performing the task.

Reasons to Downgrade PPE:

- New information indicating that the situation is less hazardous than originally thought.
- Change in site conditions that decrease the hazard.
- Change in a work task that will reduce contact with hazardous materials.

4.3.4 Medical Surveillance

All contractor and subcontractor personnel performing field work at the site are required to have passed a complete medical surveillance examination in accordance with 29 CFR 1910.120(f), (Exceptions to this requirement will only be made on a case-specific basis and then only after approval of CEHNC and the PESM). A physician's medical release for work will be confirmed by the UXOSO before an employee can begin site activities. At a minimum, the exam must be taken annually and upon termination employment with Tetra Tech EC, Inc. Additional medical testing may be required by the Tetra Tech EC, Inc. PESM in consultation with the company physician and the UXOSO if an overt exposure or accident occurs, or if other site conditions warrant further medical surveillance.

All employees and subcontractor personnel performing field work where potential exposure to contaminants exist at the site are required to have passed a medical surveillance examination in accordance with 29 CFR 1910.120(f) and, where applicable, expanded health standards (Exceptions to this requirement will only be made on a case-specific basis and then only after approval of CEHNC and the PESM).

The Tetra Tech EC, Inc. Corporate Medical Surveillance Program is described in detail in EHS 4-5 section of the CRL. The Corporate Medical Consultant (CMC) is Greaney Medical Group in California. Dr. Peter Greaney is Board certified in occupational medicine.

4.3.5 Medical Surveillance Requirements

A physician's medical release for work will be confirmed by the UXOSO before an employee can work in the exclusion zone. The examination must be current within one (1) year [up to two (2) years if appropriate documentation from the physician is received]. An approved medical examination must also be offered upon termination of hazardous waste site-related work if the last examination was not taken within the previous six months. Additional medical testing may be required by the PESM in consultation with the Corporate Medical Consultant and the UXOSO

if an over-exposure or accident occurs, if an employee exhibits symptoms of exposure, or if other site conditions warrant further medical surveillance.

Personal Protective Equipment Selection							
TASK	HEAD	EYE/FACE	FEET	HANDS	BODY	HEARING	RESPIRATOR
1. Mobilization/Demobilization.	HH if overhead hazards exist	SG	WB	LWG	WC	EP as needed	Level D
2. MEC Surface Clearance	HH if overhead hazards exist	SG	WB	LWG	WC	EP as needed	Level D
3. Conventional Survey	HH if overhead hazards exist	SG	WB	LWG	WC	EP as needed	Level D
4. Brush Clearance	HH if overhead hazards exist or H.E. is present.	SG, PFS	ST/CB if using a chainsaw	LWG	WC	EP as needed	Level D
6. Conduct Geophysical Surveys	HH if overhead hazards exist	SG	WB	LWG	WC	EP as needed	Level D
7. Excavation of Subsurface Anomalies	HH if overhead hazards exist or CE. is present	SG	WB/ST/CB	LWG	WC	EP as needed	Level D
8. Disposal of MEC	HH if overhead hazards exist or CE. is present	SG	WB	LWG	WC	EP as needed	Level D
Notes:	HH - Hard Hat SG - ANSI approved safety glasses PFS - Plastic Face Shield CE - Heavy Equipment	WB - Work Boots CB - Composite Boots OB - Over Boots LWG	Surg - Surgical Gloves Neo - Neoprene Gloves Nit - Nitral Gloves - Leather Work Gloves	WC - Work Clothes EP - Ear Plugs EM - Ear Muffs ST - Steel Toe			

4.3.6 Medical Data Sheet

A medical data sheet is provided in Appendix F. It is intended to provide basic information that would be useful to professional medical personnel if medical treatment or transport to emergency medical facilities is required. Where possible, this medical data sheet will accompany the personnel needing medical assistance. The medical data sheet will be maintained in a secure location, treated as confidential, and used only on a need-to-know basis.

4.3.7 Exposure Monitoring

The UXOSO will monitor wind direction and temperature during field activities and periodically record the data in a logbook.

4.3.7.1 Integrated Air Monitoring

Assessment and evaluation of field personnel exposures to airborne contaminants through integrated air monitoring shall be performed by the UXOSO concurrent with activities which may generate the exposures in excess of OSHA PELs.

Generally, those employees with the greatest risk of exposure will be monitored. Other areas or employees may be monitored if the UXOSO suspects potential exposures above the capabilities of the PPE being worn. Personnel exposure results will be tabulated and posted on site. Specific procedures and analytical methods shall be specified in the APP addendum. Only analytical laboratories accredited by the American Industrial Hygiene Association shall perform analysis of samples collected for assessment of employee exposures. The laboratory analysis will include field blanks, as required by the individual method or laboratory. Duplicate samples or splits with other laboratories may be used during the project. The laboratory shall also be a successful participant in the PAT program for the category of material for which they are analyzing project samples.

4.3.7.2 Noise Monitoring

Noise is a potential hazard associated with the operation of heavy equipment, pumps and generators. Noise from MEC detonations is also a potential hazard at the site. Excessive noise presents two potential problems. First, it hinders communication between workers. Second, excessive noise exposures, to both continuous and impact noise, can have adverse effects on long term hearing capability. Hearing damage may be temporary or permanent depending upon the loudness and frequency of the noise and the length of the exposure period.

Personnel working on this project are to be given an audiogram (hearing test) and hearing conservation training. The PESM or UXOSO will verify these requirements have been met for each site worker. The UXOSO will ensure ear protection such as disposable earplugs, is made available to, and used by, all personnel working near operating heavy equipment or other sources of high intensity noise. Hearing protection is required any time the noise level reaches 85 dbA or greater. In very high noise areas, the 8-hour TWA will be determined and exposure time limited to the acceptable limits. Hazardous noise placards will be posted as required along the boundary of high noise areas.

In order to establish hearing protection requirements, the UXOSO can either monitor the noise or require the use of hearing protection for all personnel working within 50 feet of the equipment or noise source.

4.4 HEAT AND COLD STRESS

4.4.1 Heat Stress

4.4.1.1 Hazard Identification

There is a potential for heat stress and related illness/injury during work activities. Specific potential hazards include:

- Heat rash
- Heat cramps
- Fainting (and related physical injury)
- Heat Exhaustion
- Heat Stroke

Heat stress is directly related to the inability of the body to cool itself via evaporation of sweat. Heat rash occurs because sweat is not evaporating. The salty fluid remains in contact with the skin causing irritation and vesicular inflammation. Standing erect and immobile in the heat allows blood to pool in the lower extremities. As a result, blood does not return to the heart to be pumped back to the brain and fainting may occur. Physical injuries may occur as a secondary effect when an individual faints and falls to the ground. Heat cramps are painful spasms of the muscles due to excessive water and salt loss from profuse sweating. Similarly, heat exhaustion occurs due to the large fluid and salt loss from profuse sweating. Heat exhaustion is characterized by clammy and moist skin, nausea, dizziness, headaches and low blood pressure. Heat stroke occurs when the body's temperature regulatory system has failed. Skin is hot, dry, red, and spotted. The effected person may be mentally confused, delirious and convulsions may occur. A person exhibiting signs of heat stroke should be immediately removed from the work area and placed in a shaded area. The injured person should be soaked with water and fanned to promote evaporation. Medical attention must be obtained immediately. **EARLY RECOGNITION AND TREATMENT OF HEAT STROKE ARE THE ONLY MEANS OF PREVENTING BRAIN DAMAGE OR DEATH.**

Early symptoms of heat stress related problems include the following:

- Decline in task performance.
- Lack of coordination.
- Decline in alertness.
- Unsteady walk.
- Excessive fatigue.
- Muscle cramps.
- Dizziness.

4.4.1.2 Hazard Mitigation/Prevention

Proper training and preventive measures will aid in averting loss of worker productivity and serious illness. Heat stress prevention is particularly important because once a person suffers from heat stroke or heat exhaustion, that individual may be predisposed to additional heat related illnesses. To avoid heat stress, the following procedures/requirements will be considered and implemented **as appropriate**:

- Work Schedules will be modified as necessary:
- Modify work/rest schedules according to temperatures and work conditions
- Mandate work slowdowns as needed
- Perform work during cooler hours of the day, if possible
- Physiological monitoring will be performed;
- Shelter (air-conditioned, if possible) or shaded areas will be provided to protect personnel during rest periods;
- Measures will be taken to maintain worker's body fluids at normal levels. This is necessary to ensure the cardiovascular system functions adequately. Daily fluid intake must approximately equal the amount of water lost in sweat, e.g. 8 fluid ounces (0.23 liters) of water must be ingested for approximately every 8 ounces (0.23 kg) of weight loss. The normal thirst mechanism is not sensitive enough to ensure enough water will be consumed at a rate high enough to replace lost sweat. When heavy sweating occurs, encourage the worker to drink more. The following strategies may be useful:
 - Maintain water temperature at 50° to 60°F (10°-16.6°C)
 - Provide small disposable cups that hold about 4 ounces (0.1 liter)
 - Have workers drink 16 ounces (0.5 liters) of fluid, preferably water or diluted drinks, before beginning work
 - Urge workers to drink a cup or two of fluid every 15 to 20 minutes, or at each monitoring break. A total of 1 to 1.6 gallons (4 to 6 liters) of fluid per day are recommended, but more may be necessary to maintain body weight
- Workers will be trained to recognize the symptoms of heat-related illnesses and instructed in the specific procedures used to reduce the risk of heat stress and heat stroke;
- Personnel will be rotated and job functions will be alternated; and,
- Cooling vests will be utilized when impermeable clothing is worn

4.4.1.3 Work/Rest Schedule And Physiological Monitoring

When the ambient temperature exceeds 70°F, the UXOSO will institute physiological monitoring, Wet Bulb Globe Temperature (WBGT) monitoring or a combination of the two to determine work/rest regimes. Work periods for Exclusion Zone workers will not exceed the maximum times specified in Table 4-1. At a minimum, rest periods will be 15 minutes. Based

on the results of physiological monitoring and worker observations (see below), the UXOSO can decrease the work duration or increase the rest period.

The UXOSO may choose to use Wet Bulb Globe Temperature (WBGT) to monitor for conditions that pose a threat of thermal strain to workers. WBGT monitoring should be conducted by the UXOSO when workers are dressed in level D, or modified level D, PPE ensembles and the ambient temperature exceeds 75°F. Once the WBGT has been determined, the UXOSO can estimate a worker’s metabolic heat load category using the tables below.

Maximum Work Duration during Hot Weather		
Ambient temperature ^{(a) (b)}	Duration using Level D/Modified Level D PPE (minutes)	Duration using Level C, B, or A PPE (minutes)
90° or above	45	15
87.5-90°F	60	30
82.5-87.5°F	90	60
77.5-82.5°F	120	90
72.5-77.5°F	150	120

From NIOSH/OSHA/USEPA/USCG publication *Occupational Safety and Health Guidance Manual for Hazardous Waste Sites* (1985)

(a) For work levels of 250 kilocalories/hour.
(b) Calculate the adjusted air temperature (ta adj) by using the equation:

$$ta\ adj = ta + (13 \times \text{percent sunshine})$$

where: ta is the air temperature in °F.

Measure air temperature (ta) with a standard mercury-in-glass thermometer, with the bulb shielded from radiant heat.
Estimate percent sunshine by judging what percent of the time the sun is not covered by clouds that are thick enough to produce a shadow (100 percent sunshine = no cloud cover and a sharp, distinct shadow; zero percent sunshine = no shadows.)

Examples of Activities within Metabolic Rate Categories	
Categories	Example Activities
Resting	Sitting quietly
Light	Sitting with moderate leg and arm movement Using table saw
Moderate	Standing with light or moderate work (at bench or operating machine) Scrubbing in standing position Walking about with moderate lifting Walking on level surface while carrying 50lb load
Heavy	Sawing by hand Shoveling Intermittent heavy lifting

Once the metabolic category is known, you can then determine the appropriate work/rest regimen for the worker. The values outlined in the table above are applicable for acclimated workers clothed in a permeable work ensemble. The WBGT index will not be used when impermeable ensembles are worn.

Modification to the work/rest schedule can also be instituted by the UXOSO based on physiological monitoring data. The UXOSO or Team Leader will monitor the worker's heart rate and temperature to evaluate the need to adjust work/rest schedules. To monitor a worker's heart rate the UXOSO will count the radial pulse of the worker during a 30-second period as early as possible in the rest period. If the worker's heart rate

Work/Rest Schedule Based on WBGT Reading			
Work – Rest Regimen	Work Load		
	Light	Moderate	Heavy
Continuous work	85°F (29.5°C)	82°F (27.5°C)	79°F (26.0°C)
75% Work – 25% Rest, each hour	87°F (30.6°C)	83°F (28.5°C)	82°F (27.5°C)
50% Work – 50% Rest, each hour	89°F (31.5°C)	85°F (29.5°C)	83°F (28.5°C)
25% Work – 75% -Rest, each hour	90°F (32.5°C)	88°F (31.0°C)	86°F (30.0°C)

From year 2000 TLVs and BEIs booklet published by ACGIH

exceeds 110 beats per minute at the beginning of the rest period, the next work cycle should be shortened by a third (the rest time should remain constant). If the worker's heart rate still exceeds 110 beats per minute at the beginning of the next rest period, the following work cycle again should be shortened by a third. This process will continue until the workers pulse drops below 110 beats per minute.

A clinical thermometer or similar device should be used to measure the oral temperature of workers at the end of the work period (before drinking). When the oral temperature of a worker exceeds 99.6°F (37.6°C), shorten the next work cycle by one-third. If the oral temperature continues to exceed 99.6°F (37.6°C) the next work cycle will again be shortened by a third. This process will continue until elevated temperatures (99.6°F) are not observed. The results of worker monitoring will be recorded by the UXOSO or the Team Leader in his logbook.

4.4.2 Cold Stress

4.4.2.1 Hazard Identification

Exposure to low temperatures presents a risk to employee safety and health through the direct effect of the low temperature on the body and collateral effects such as injuries caused by slipping on ice, decreased dexterity and reduced dependability of equipment.

Work conducted in the winter months can become a hazard for field personnel due to cold exposure. All personnel must exercise increased care when working in cold environments to prevent accidents that may result from the cold. Wind increases the impact of cold on the body.

The effects of cold exposure include frostbite and hypothermia. Frostbite is generally localized cold exposure, while hypothermia is a systemic type of exposure. Recognition of the symptoms of cold-related illnesses will be discussed during the health and safety briefing conducted prior to the beginning of site activities.

Frostbite rarely occurs unless temperatures are below freezing or the wind chill calculations are below freezing and usually not unless temperatures are less than 20°F. Frostbite injuries occur most commonly on the distal parts of the body (nose, earlobes, hands, and feet) that are subject to intense vasoconstriction (constriction of blood vessel in order to conserve heat for the core body areas). The three general categories of frostbite are:

- *Frostnip* - A whitened area of the skin that is slightly burning or painful
- *Superficial frostbite* - Waxy, white skin with a firm sensation but with some resiliency. Victim feels “warm” and has a notable cessation of pain
- *Deep frostbite* - Tissue damage deeper than the skin and at times, down to the bone. The skin is cold, numb and hard

Hypothermia is a life-threatening condition in which the core body temperature falls below 95°F. Hypothermia can occur at temperatures well above freezing, particularly when the skin or clothing becomes wet. During exposure to cold, maximum shivering occurs when the core body temperature falls to 95°F. As hypothermia progresses, depression of the central nervous system becomes increasingly more severe and the potential for recovery more remote. Signs and symptoms range from sluggishness and slurred speech in the early stages of hypothermia to disorientation and eventually unconsciousness. The table below summarizes the symptoms that appear in the various phases of hypothermia.

Progressive Clinical Symptoms of Hypothermia	
Core Temperature F°	Clinical Signs
95°	Maximum shivering
87°- 89°	Consciousness is clouded; blood pressure is difficult to obtain; pupils are dilated
84°- 86°	Progressive loss of consciousness; muscular rigidity; decreased respiration
79°	Victim rarely conscious
70°- 72°	Maximum risk of ventricular fibrillation

4.4.2.2 Hazard Mitigation/Prevention

In preventing cold stress, the UXOSO must consider factors relating both to the worker and the environment. Training, medical screening, establishment of administrative controls, selecting proper work clothing and wind-chill monitoring all contribute to the prevention of hypothermia and frostbite. Recognizing the early signs and symptoms of cold stress can help prevent serious injury. The following prevention methods will be implemented on site **as appropriate** to reduce cold stress exposure:

- Provide workers training in the recognition of the symptoms of hypothermia and frostbite;

- Provide appropriate first-aid instruction;
- When the air temperature is below 50°F, inform workers of the proper clothing requirements and any work practices that are in effect to reduce cold exposure;
- Emphasize cold injury and illness recognition and prevention measures during daily safety briefings when the potential for cold injuries and illnesses exists;
- Discontinue work when unusually hazardous conditions exist;
- Prohibit the use of Phenothiazine (a sedative) and beta-blocker drugs;
- Provide a heated tent for rest breaks;
- Record site temperature daily;
- Provide warm beverages for workers;
- Adjust the work schedule:
 - Establish a work/rest schedule based upon worker monitoring
 - At the first sign of uncontrollable shivering, place workers in a heated shelter.
 - Stop work when the air temperature reaches 0°F.
- Encourage workers to layer clothing when air temperature is below 50°F. Clothing that has a high insulation value will be worn under protective garments;
- Require insulated gloves when the wind chill index is below 32°F; and
- Make available insulating dry clothing.

4.4.3 Standard Operating Safety Procedures

Hazards due to normal site activities can be reduced by using common sense and following safe practices. Running and horseplay are expressly forbidden.

4.4.4 Site Control Measures

Site zones are intended to control the spread of potential contamination throughout the site and ensure only authorized individuals are permitted into potentially hazardous areas. A single exclusion zone (EZ) will be utilized for ordnance activities. The EZ will be established in accordance with the provisions of the approved Work Plan.

All areas where activities are performed that may involve exposure to hazardous conditions (MEC) should be included in an Exclusion Zone. This zone will be clearly delineated with cones, hazard tape, and fencing or by other means. The UXOSO may establish more than one EZ where different levels of protection may be employed or different hazards exist. The size of the EZ shall be determined by the site UXOSO allowing adequate space for the activity to be completed. The size of the EZ will be independently confirmed by the UXOSO or other qualified designee prior to the beginning of MEC operations.

The initial size of the Exclusion Zone for MEC operations (i.e., during the surface sweep) will be based on the minimum separation distance (MSD) as determined by the munition with the greatest fragmentation distance (MGFD) and engineering controls employed on site. The size of the exclusion zone may be reduced as a result of using engineering controls or increased if a larger than anticipated UXO item is encountered during surface/subsurface investigation. The necessary decrease or increase in EZ size will be determined jointly by the UXOSO, SUXOS and local EOD (as appropriate or required). No personnel are allowed in the EZ without: a buddy; the proper personal protective equipment; medical authorization; and training certification. In addition, during MEC activities, only MEC-qualified personnel will be allowed in the exclusion zone. The exception to this rule is for heavy equipment operators under the direct supervision and observation of trained MEC personnel, who are present in the EZ to perform MEC-related earthwork or other tasks.

4.4.5 Personal Hygiene

A personal hygiene station will be setup at the portable toilet station and as required in the rest area outside the EZ.

4.4.6 Equipment Decontamination

4.4.6.1 Site Description and Contamination Characterization

The site description and characterization of the potential contamination for each area of investigation will be included in the APP addendum to be developed for each project as required.

4.4.7 Emergency Equipment

The following minimum emergency equipment shall be kept and maintained on-site:

- Industrial first aid kit;
- Bloodborne pathogens kit;
- Portable one liter eye washes (one per field team);
- 15-minute eye wash (setup at the office location);
- Air horns (one per field team);
- Fire extinguishers, rated for at least ten pounds (one per trailer/vehicle, trailers and located at hot work stations); and
- Spill control equipment to include, but not be limited to, absorbent material and disposal container.

After an emergency, prompt restoration of utilities, fire protection equipment, medical supplies, and other equipment will reduce the possibility of further losses. Some of the items that may need to be addressed are:

- Refilling fire extinguishers;
- Refilling medical supplies;
- Replacing/Recharging eye washes; and
- Replacing used air horns.

4.5 EMERGENCY RESPONSE PROCEDURES

This section establishes procedures and provides information for use during a project emergency. Emergencies happen unexpectedly and quickly, and require an immediate response, therefore, contingency planning and advanced training of staff is essential. An emergency plan is required by OSHA (29 CFR 1910.120). A copy of this plan shall be posted in the Field Office at other appropriate locations at the discretion of the UXOSO or in accordance with the work plan. Careful consideration has been given to the relative possibility of fire, explosion, or release of vapors, dusts, or gases that may impinge on nearby facilities.

4.5.1 Responsibilities

4.5.1.1 Emergency Coordinator

The SUXOS serves as the Emergency Coordinator and the UXOSO as the alternate. The Emergency Coordinator will make contact with Local Emergency Response personnel (e.g., hospital, police and fire departments) prior to beginning work on site. In these contacts, the Emergency Coordinator will inform interested parties about the nature and duration of work expected on the site and the type of contaminants and possible health or safety effects of emergencies involving these contaminants. The Emergency Coordinator will locate emergency phone numbers and identify hospital routes prior to beginning work on site. The Emergency Coordinator shall make necessary arrangements to be prepared for any emergencies that could occur. The Emergency Coordinator is specifically responsible for the following:

- Implementing the site Emergency Response/Contingency Plan (ERCP), including ordering site evacuations, coordinating fire fighting efforts and directing spill control and cleanup.
- Supervising site evacuation and decontamination procedures.
- Contacting emergency services such as the fire department, ambulance and security services, as may be required and as requested by the Emergency Rescue Team.
- Assisting in providing first aid services and medical support or evacuation for injured or exposed personnel.
- Determining the cause of the incident and ways to prevent future occurrences.
- Preparing a written incident report for submission to the PESM.

4.5.2 Site Personnel

The contents and requirements of the project-specific Emergency Response/Contingency plan will be reviewed, at a minimum, with all on-site personnel during their site-specific training and during daily safety briefings as necessary. Site personnel are responsible for knowing how to initiate emergency response actions and their respective responsibilities in the event the Emergency Response/Contingency Plan must be implemented. On-site personnel are responsible for reporting emergency situations or conditions immediately to their supervisors, alerting other employees, helping injured personnel, and assisting as directed to mitigate the incident. Personnel are expected to notify the Emergency Coordinator of situations that could constitute a site emergency or result in the occurrence of a site emergency.

4.5.3 Local Emergency Support Units

In order to be able to deal with any emergency that might occur during activities at the site, emergency phone numbers will be posted prominently in the field office and in all places where telephone service is available. A hospital route map and directions to the local hospital are provided in Appendix B. This map will be posted adjacent to the emergency telephone numbers in the field office and in all places where telephone service is available. It should also be placed in all on-site vehicles.

4.5.4 Pre-Emergency Planning

TtECI will communicate directly with administrative personnel from the emergency room at the hospital in order to determine whether the hospital has the facilities and personnel needed to treat cases of trauma resulting from exposure to any of the contaminants expected to be found on the site.

Before field activities begin, the local emergency response personnel (e.g., fire and police departments [either military or civilian]) will be notified of the schedule for field activities and about the materials that are thought to exist on the site. This will allow response personnel to be able to respond quickly and effectively in the event of a fire, explosion, or other emergency.

4.6 EMERGENCY MEDICAL TREATMENT

The procedures and rules in this EHSP are designed to prevent injury to site personnel, visitors and the general public. However, should an injury occur, no matter how slight, it will be reported to the UXOSO immediately. First aid and emergency equipment will be available on site.

During the site-specific training, project personnel will be informed of the location of the first aid station(s) that has been set up. Unless they are in immediate danger, severely injured persons will not be moved until paramedics can attend to them. Some injuries, such as severe cuts, lacerations or burns may require immediate treatment. Any first aid instructions that can be obtained from doctors or paramedics before an emergency-response squad arrives at the site or before the injured person can be transported to the hospital will be followed closely.

Location of Emergency Equipment On Site	
Type of Equipment	Location
First Aid Kit w/ Bloodborne Pathogens Kit ^{1,2}	Field Office and each Field Team Vehicle
Fire Extinguisher, rated for at least 10lbs BC	Field Office and each Field Team Vehicle
ANSI Approved Emergency Eye Wash	Field Office and each Team
Air Horns	Field Office and each Team

1. The first aid kit shall meet the requirements of 29 CFR 1910.151

At a minimum, two (2) individuals holding current certification in First Aid/Cardiopulmonary Resuscitation (CPR) must be present on site. When personnel are transported to the hospital, the UXOSO will provide a copy of the Medical Data Sheet to the paramedics and treating physician. If possible, the UXOSO will go to the hospital to relay information to the hospital staff and to assist the injured employee as needed.

Only in non-emergency situations will an injured person be transported to the hospital by means other than an ambulance. Appendix B provides directions to the hospital and a map showing the route.

4.7 EMERGENCY SITE EVACUATION

In order to mobilize the manpower resources and equipment necessary to cope with a fire or other emergency, a clear chain of authority will be established. The Emergency Coordinator will take charge of all emergency response activities and dictate the procedures that will be followed for the duration of the emergency. The Emergency Coordinator will report immediately to the scene of the emergency, assess the seriousness of the situation and direct whatever efforts are necessary until the emergency response units arrive. At his/her discretion, the Emergency Coordinator may order the closure of the site for an indefinite period.

All project personnel will be instructed in proper emergency response procedures and locations of emergency telephone numbers during the initial site safety meeting. Evacuation routes, meeting places and location of emergency equipment and first aid supplies will also be discussed.

4.7.1 Evacuation Procedures

In the event of an emergency situation, such as fire, explosion, electrical storm, etc., an air horn will be sounded by the person first knowledgeable of the emergency situation for three 5-second intervals indicating the initiation of evacuation procedures. All personnel in both the restricted and non-restricted areas will evacuate and assemble near the Support Zone or other safe area at a Rally Point identified by the Emergency Coordinator. The Rally Point will be pre-determined and will be identified for site personnel during the initial safety briefing. The Emergency Coordinator will have 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 SUXOS must see that access for emergency equipment is provided and that all combustion apparatus have been shut down once the alarm

has been sounded. Once the safety of all personnel is established, the Fire Department and other emergency response groups will be notified by telephone of the emergency. Additionally, an emergency involving chemical contamination requires that the emergency response groups as well as the hospital be notified.

After sounding the alarm and initiating emergency response procedures, the Emergency Coordinator will check and verify that access roads are not obstructed. If traffic control is necessary, as in the event of a fire or explosion, a designated project team member who has been trained in traffic control procedures will take over these duties until local police and fire fighters arrive. A project team member will also be assigned to be in charge of emergency communications during an emergency. He/she will attend the site telephone specified by the Emergency Coordinator from the time the alarm sounds until the emergency has ended.

The Emergency Coordinator will remain at the site to provide any assistance requested by emergency-response squads as they arrive to deal with the situation. TtECI will provide emergency site evacuation routes and procedures to emergency response units.

4.7.2 Evacuation Drills

Practice drills of emergency preparedness plans are to be conducted at least annually on all sites. At hazardous waste operations, a drill is to be conducted for all projects of three months duration or longer. The necessity for a drill on projects of less than three months duration will be determined by the PESM and PM based on potential emergencies at the site. For the Bains Gap project an emergency drill will be conducted during the first week of operations. Critiques of the effectiveness of the emergency preparedness plan are to be conducted whenever a practice drill is conducted or a plan is activated for a real or perceived emergency. The critique will be retained in the file and should include:

- The date of the drill or plan activation.
- A chronological summary of the incident or exercise.
- Description of activities taken or decisions made by site personnel.
- Types of monitoring performed during the event.
- A summary of any injuries, illnesses, or potential exposures that occurred during the emergency.
- A list of deficiencies noted and recommended corrective actions.

Any changes made to the plan as a result of the critiques will be documented in writing and communicated to all site personnel.

4.7.3 Real-Time Air Monitoring

The following instruments may be used for real-time air monitoring:

- Photoionization Detector (PID), 10.2 or 10.6 eV, or
- Flameionization Detector (FID); and
- Combustible Gas Indicator (CGI) with an Oxygen (O₂) sensor

Real-time air monitoring for oxygen and combustible gases will be conducted when personnel have to enter an excavation that is 4 feet in depth or greater. Air monitoring will be conducted in the workers breathing zone and will be conducted prior to entry into the excavation and subsequently, every 15 to 30 minutes. Air monitoring action levels for specific chemical compounds that may present an occupational exposure during site activities, will be developed for the APP addendum as needed. The guidelines in EM 385-1-1, Section 06.1 for permit-required confined spaces (PRCSs) will be followed.

4.7.4 Data Quality Assurance

4.7.4.1 Calibration

Instrument calibration shall be documented and included in a dedicated safety and health logbook or on separate calibration pages. All real-time air monitoring instruments shall be calibrated before and after each shift in accordance with manufacturer specifications/procedures. Calibration checks may be used during the day to confirm instrument accuracy. Duplicate readings may be taken to confirm individual instrument response.

4.7.4.2 Operations

All instruments shall be operated in accordance with the manufacturer's specifications. Manufacturers' literature, including an operations manual for each piece of monitoring equipment will be maintained on-site by the UXOSO for reference.

4.7.4.3 Data Review

The UXOSO will interpret all air monitoring data based on the real-time air monitoring action levels and his/her professional judgment. The UXOSO shall review the data with the PESM to evaluate the potential for worker exposure, upgrades/downgrades in Level of Protection (LOP), comparison to direct reading instrumentation and changes to the integrated monitoring strategy. The UXOSO will immediately report all integrated sampling results above the PEL/TLV (one half of PEL/TLV where no respirators are worn) to the PESM. Monitoring and sampling data, along with all sample documentation will be periodically reviewed by the PESM.

4.7.5 Logs, Reports, and Record Keeping

The following is a summary of required logs, reports and recordkeeping.

4.7.5.1 Field Change Request

The Field Change Request Form is to be completed for initiating a change to the SSHP. The PESM and Project Manager or designee approval is required. The original will be kept in the project file. Approved changes will be reviewed with affected field personnel at a safety briefing. Copies will be distributed to CEHNC. A field change request form is provided in Appendix F.

4.7.5.2 Medical and Training Records

Copies or verification of training (40 hour, 8 hour, supervisor, site specific training and documentation of three day OJT) and medical clearance for hazardous waste site work and respirator use will be maintained onsite. Records for all subcontractor employees will also be kept onsite. All employee medical records will be maintained by the Corporate Medical Consultant - Greaney Medical Group in accordance with Tetra Tech EC, Inc. EHS Program, Section EHS 1-8.

4.7.5.3 On-site Log

A log of personnel on-site each day will be kept by the Project Superintendent or designee and personnel shall sign in/out of the EZ daily.

4.7.5.4 Weekly and Monthly Safety Reports

The UXOSO shall complete and submit weekly and monthly health and safety reports to the PESM. A Copy of these reports are provided in Appendix F.

4.7.5.5 Exposure Records

All personal air monitoring results, laboratory reports, calculations and air sampling data sheets are part of an employee exposure record. These records will be maintained by the UXOSO during site work. At the end of the project they will be maintained according to 29 CFR 1910.20 and Tetra Tech EC, Inc. Program.

4.7.5.6 Accident/Incident Reports

4.7.5.6.1 Incident Investigation and Reporting

Upon receiving a report of incident occurrence on this site, the UXOSO will investigate the circumstances surrounding the incident. The PESM may also participate in the investigation of serious incidents. The Standard Incident Report and Follow-up Form in Appendix F may be used to assist in the investigation.

All accidents or incidents will be investigated, as appropriate, and an accident report will be completed. The Contracting Officer will be notified by telephone as soon as first aid and/or emergency response needs have been met. A written report will be provided within 30 calendar days on ENG. Form 3394 to the Contracting Officer. For reporting purposes, the term accident refers to fatalities, lost time injuries, spill or exposure to hazardous materials (radioactive materials, toxic materials, explosive or flammable materials), fire, explosion, property damage,

or potential occurrence of the above. Any information released from the health care provider, which is not deemed confidential patient information is to be attached to the appropriate form. Any medical information that is released by patient consent is to be filed in the individual's medical records and treated as confidential.

All accidents must be reported on ENG 3394 and submitted within 30 calendar days to the Contracting Officer. Should an accident occur which results in a fatality, \$10,000 or more in property damage, three or more persons hospitalized or any adverse publicity for the USACE, it must be reported immediately to the *Contracting Officer ((256) 895-1387)* by telephone and reported on ENG 3394 as stated above.

In addition to the USACE incident form, the accident/incident report found in the Tetra Tech EC, Inc. Corporate Health and Safety Program EHS 1-7, Incident Reporting and Investigation, shall be completed, and is included in Appendix F. Written confirmation of verbal reports are to be submitted to the PESM within 24 hours. Incident analysis reports are to be submitted to the PESM within 72 hours.

4.7.5.7 OSHA Form 200

An OSHA Form 200 will be kept at the project site. All recordable injuries or illness will be recorded on this form. At the end of the project, the original will be sent to the PESM for maintenance. Subcontractor employers must also meet the requirements of maintaining an OSHA 200 Form. The Tetra Tech EC, Inc. incident reporting and investigation form meets the requirements of the OSHA Form 101(supplemental record) and must be maintained with the OSHA Form 200 for all recordable injuries or illness.

4.7.5.8 Health and Safety Logbooks

The UXOSO will maintain logbooks during site work. The daily site conditions, personnel air monitoring results and significant events will be recorded. The original logbooks will become part of the exposure records file.

4.7.5.9 Hazard Communication Program/MSDS

The hazard communication program will be maintained on site and training on the program information and requirements will be provided in accordance with 29 CFR 1910.1200 and 1926.59, *Hazard Communication*, 1910.1201, *Retention of DOT Markings, Placards and Labels*, and Foster Wheeler Environmental Corporation Health and Safety Program.

Material Safety Data Sheets (MSDS) will be obtained for applicable substances and included in the site hazard communication file. A copy of the MSDS will be obtained and maintained in the file for all chemicals to which the requirements apply; this will apply to both Tetra Tech EC, Inc. personnel and any subcontractors for which Tetra Tech EC, Inc. has responsibility and/or oversight responsibilities. All chemical containers will be properly labeled in accordance with the requirements of the applicable standards.

4.7.5.10 Work Permits

All work permits, including confined space entry, hot work, lockout/tagout, and excavation and trenching permits will be maintained by the UXOSO in the project files.

4.7.5.11 EHS Inspections

Weekly and monthly project inspections will be conducted in accordance with the Tetra Tech EC, Inc. Program, EHS 3-3. Weekly inspections are to be conducted by the UXOSO. Monthly inspections are to be conducted by the Project Manager.

The PESM shall conduct quarterly inspections. The PESM inspection shall include:

- A visual inspection of the site. Areas of the project site that may be accessed and inspected, including but not limited to, exclusion zones, buildings, and waste storage areas;
- Completion of applicable and selected portions of the PESM Inspection Checklists or equivalent documentation;
- A review of on-site records (e.g., permits, agency approvals, waste analyses, waste profiles, waste manifests, discharge monitoring reports, training records, etc.);
- Positive recognition of conformance;
- Non-conformances noted by the PESM that can be remedied during the conduct of the inspection will be corrected. Conformance and non-conformance shall be documented on the PESM Inspection Checklists;
- Training of project personnel, when possible, to address non-conformances; and
- Identification of any observed best practices.

The PESM will stop work if any conditions or work practices are identified which pose imminent danger to the environment or to the safety and health of personnel.

ATTACHMENT A
Activity Hazard Analysis

Activity Hazard Analysis

ACTIVITY HAZARD ANALYSES

Project: <u>Bains Gap Road Area</u>		Location: <u>Fort McClellan, Anniston, Alabama</u>
Activity: <u>Mobilization /Demobilization</u>		
MAJOR STEPS	POTENTIAL HAZARDS	PROTECTIVE MEASURES/CONTROLS
1. Mobilization/ demobilization of equipment and supplies.	1. Back Injuries	1. Site personnel will be instructed on proper lifting techniques; mechanical devices should be used to reduce manual handling of materials; team lifting should be utilized if mechanical devices are not available; instruct personnel on proper lifting techniques.
	2. Heavy Equipment Operation	2. Follow set procedures; equipment will have rollover protective structures and seat belts; operators shall wear seat belts when operating equipment; do not operate equipment on grades which exceed manufacturer's recommendations; equipment will have guards, canopies or grills to protect from flying objects; ground personnel will stay clear of all suspended loads; all slings chains and ropes will be rated for the load in which it is expected to lift; spills and absorbent materials will be readily available; drip pans, polyethylene sheeting or other means will be used for secondary containment; eye contact with operators will be made before approaching equipment; equipment will not be approached on blind sides; avoid equipment swing areas; know hand signals; all equipment will be equipped with backup alarms.
	3. Temperature Extremes	3. Site personnel will be trained about signs and symptoms of heat and cold stress; TtECI Program EHS 4-6 will be followed.
	4. Slips/Trips/Falls	4. Maintain work areas safe and orderly; unloading areas should be on even terrain; watch for uneven terrain, stumps, vegetation in walk areas; mark tripping hazards and repair if possible.
	5. Vehicular Traffic	5. Spotters will be used when backing up trucks and heavy equipment; trucks and heavy equipment will be equipped with back up alarms; traffic cones/vests will be used when working in public traffic areas.
	6. Overhead Hazards	6. Personnel will be required to wear hard hats.
	7. Dropped Objects	7. Steel toe boots will be worn.
	8. Noise	8. Hearing protection with a noise reduction rating capable of maintaining personal exposure below 85 dBA (ear muffs or plugs) will be worn as needed during heavy equipment operations; all equipment will be equipped with manufacturer's required mufflers.
	9. Eye Injuries	9. Safety glasses will be worn. A portable eye wash station will be located adjacent to work activities.
	10. Sharp Objects	10. Cut resistant work gloves will be worn; All hand and power tools will be maintained in safe condition; first aid kits will be available by work area.
	11. Fire	11. 10 lb. ABC type fire extinguisher will be located adjacent to work area; all gasoline powered equipment will be grounded.
	12. Spills	12. Spill and absorbent materials will be readily available. All waste materials generated will be contained in 55-gallon drums.
	13. Biological Hazards	13. Follow set procedures.
	14. Hand and Power Tools	14. The proper tools will be used for each task, all tools will be inspected before each use, damaged tools will be removed from service, tools will be used in accordance with manufacturer's instructions.
EQUIPMENT USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
1. Level D PPE 2. First Aid Kits 3. Portable Eyewash 4. Fire Extinguishers 5. Heavy Equipment 6. Hand and Power Tools	1. Pre-use inspection 2. Monthly inspections will be performed on first aid kits. 3. Portable eye wash will be inspected monthly. 4. Monthly inspections will be performed on fire extinguishers 5. Conduct pre-use inspections 6. Conduct pre use inspections	1. Personnel have read and comply with APP 2. Site specific training 3. At least 2 individuals on-site will have current CPR and First Aid training 4. Instruct personnel on proper use of fire extinguishers 5. Competent operators will be used 6. Instruct personnel on proper use of hand and power tools

ACTIVITY HAZARD ANALYSES

Project: <u>Bains Gap Road Area</u>		Location: <u>Fort McClellan, Anniston, Alabama</u>
Activity: <u>MEC Surface Clearance</u>		
MAJOR STEPS	POTENTIAL HAZARDS	PROTECTIVE MEASURES/CONTROLS
1. Initial/surficial MEC survey of study areas.	1. Exposure to MEC/chemical hazards	1. Wear Level D PPE; follow procedures in the MEC Operational Plan; practice contamination avoidance; follow good personal hygiene practices.
	2. Back Injuries	2. Site personnel will be instructed on proper lifting techniques; Mechanical devices should be used to reduce manual handling of materials; team lifting should be utilized if mechanical devices are not available; Instruct personnel on proper lifting techniques.
	3. Temperature Extremes	3. Site personnel will be trained about signs and symptoms of heat and cold stress; TtECI Program EHS 4-6 will be followed.
	4. Slips/Trips/Falls	4. Maintain work areas safe and orderly; unloading areas should be on even terrain; watch for uneven terrain, stumps, vegetation in walk areas; mark tripping hazards and repair if possible.
	5. Overhead Hazards	5. Personnel will be required to wear hard hats.
	6. Dropped Objects	6. Steel toe boots will be worn.
	7. Hand and Power Tools	7. The proper tools will be used for each task, all tools will be inspected before each use, damaged tools will be removed from service, tools will be used in accordance with manufacturer's instructions.
	8. Eye Injuries	8. Safety glasses will be worn. A portable eye wash station will be located adjacent to work activities.
	9. Sharp Objects	9. Cut resistant work gloves will be worn; All hand and power tools will be maintained in safe condition; first aid kits will be available by work area.
	10. Biological Hazards	10. Follow control measures. If poisonous plants are present, PPE will be upgraded to include tyvek and gloves.
EQUIPMENT USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
1. Level D PPE 2. First Aid Kits 3. Portable Eyewash 4. Fire Extinguishers 5. Geophysical Survey Equipment 6. Hand and Power Tools	1. Pre-use inspection 2. Monthly inspections will be performed on first aid kits. 3. Portable eye wash will be inspected monthly. 4. Monthly inspections will be performed on fire extinguishers 5. Conduct pre-use inspections as per manufacturer's recommendations 6. Conduct pre-use inspections	1. Personnel have read and comply with APP 2. Site specific training 3. At least 2 individuals on-site will have current CPR and First Aid training 4. Instruct personnel on proper use of fire extinguishers 5. Competent operators will be used 6. Instruct personnel on proper use of hand and power tools

ACTIVITY HAZARD ANALYSES

Project: <u>Bains Gap Road Area</u>		Location: <u>Fort McClellan, Anniston, Alabama</u>
Activity: <u>Survey Removal Areas, Establish Corners and Boundaries</u>		
MAJOR STEPS	POTENTIAL HAZARDS	PROTECTIVE MEASURES/CONTROLS
1. Conventional survey of removal areas, establish corners and bounds.	1. Exposure to MEC/chemical hazards	1. Wear Level D PPE; follow procedures in the MEC Operational Plan; practice contamination avoidance; follow good personal hygiene practices.
	2. Back Injuries	2. Site personnel will be instructed on proper lifting techniques; Mechanical devices should be used to reduce manual handling of materials; team lifting should be utilized if mechanical devices are not available; Instruct personnel on proper lifting techniques.
	3. Temperature Extremes	3. Site personnel will be trained about signs and symptoms of heat and cold stress; TtECI Program EHS 4-6 will be followed.
	4. Slips/Trips/Falls	4. Maintain work areas safe and orderly; unloading areas should be on even terrain; watch for uneven terrain, stumps, vegetation in walk areas; mark tripping hazards and repair if possible.
	5. Dropped Objects	5. Steel toe boots will be worn.
	6. Hand and Power Tools	6. The proper tools will be used for each task, all tools will be inspected before each use, damaged tools will be removed from service, tools will be used in accordance with manufacturer's instructions.
	7. Eye Injuries	7. Safety glasses will be worn. A portable eye wash station will be located adjacent to work activities.
	8. Sharp Objects	8. Cut resistant work gloves will be worn; All hand and power tools will be maintained in safe condition; first aid kits will be available by work area.
	9. Biological Hazards	9. Follow control measures. If poisonous plants are present, PPE will be upgraded to include tyvek and gloves.
EQUIPMENT USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
1. Level D PPE 2. First Aid Kits 3. Portable Eyewash 4. Fire Extinguishers 5. Conventional Survey Equipment 6. Hand and Power Tools	1. Pre-use inspection 2. Monthly inspections will be performed on first aid kits. 3. Portable eye wash will be inspected monthly. 4. Monthly inspections will be performed on fire extinguishers 5. Conduct pre-use inspections as per manufacturer's recommendations 6. Conduct pre-use inspections	1. Personnel have read and comply with APP 2. Site specific training 3. At least 2 individuals on-site will have current CPR and First Aid training 4. Instruct personnel on proper use of fire extinguishers 5. Competent operators will be used 6. Instruct personnel on proper use of hand and power tools

ACTIVITY HAZARD ANALYSES

Project: <u>Bains Gap Road Area</u> Activity: <u>Brush Clearance</u>		Location: <u>Fort McClellan, Anniston, Alabama</u>
MAJOR STEPS	POTENTIAL HAZARDS	PROTECTIVE MEASURES/CONTROLS
1. Tree and Brush Trimming	1. Exposure to MEC/chemical hazards	1. Wear Level D PPE; follow procedures in the MEC Operational Plan; practice contamination avoidance; follow good personal hygiene practices.
	2. Back Injuries	2. Site personnel will be instructed on proper lifting techniques; Mechanical devices should be used to reduce manual handling of materials; team lifting should be utilized if mechanical devices are not available; Instruct personnel on proper lifting techniques.
	3. Heavy Equipment Operation	3. Follow procedures; equipment will have rollover protective structures and seat belts; operators shall wear seat belts when operating equipment; do not operate equipment on grades which exceed manufacturer's recommendations; equipment will have guards, canopies or grills to protect from flying objects; ground personnel will stay clear of all suspended loads; all slings chains and ropes will be rated for the load in which it is expected to lift; spills and absorbent materials will be readily available; drip pans, polyethylene sheeting or other means will be used for secondary containment; eye contact with operators will be made before approaching equipment; equipment will not be approached on blind sides; avoid equipment swing areas; know hand signals; all equipment will be equipped with backup alarms.
	4. Temperature Extremes	4. Site personnel will be trained about signs and symptoms of heat and cold stress; TtECI Program EHS 4-6 will be followed.
	5. Slips/Trips/Falls	5. Maintain work areas safe and orderly; unloading areas should be on even terrain; watch for uneven terrain, stumps, vegetation in walk areas; mark tripping hazards and repair if possible.
	6. Vehicular Traffic	6. Spotters will be used when backing up trucks and heavy equipment; trucks and heavy equipment will be equipped with back up alarms; traffic cones/vests will be used when working in public traffic areas.
	7. Overhead Hazards	7. Personnel will be required to wear hard hats.
	8. Dropped Objects	8. Steel toe boots will be worn.
	9. Noise	9. Hearing protection with a noise reduction rating capable of maintaining personal exposure below 85 dBA (ear muffs or plugs) will be worn as needed during heavy equipment operations; all equipment will be equipped with manufacturer's required mufflers.
	10. Eye Injuries	10. Safety glasses will be worn. A portable eye wash station will be located adjacent to work activities.
	11. Sharp Objects	11. Cut resistant work gloves will be worn; All hand and power tools will be maintained in safe condition; first aid kits will be available by work area.
	12. Fire	12. 10 lb. ABC type fire extinguisher will be located adjacent to work area; all gasoline powered equipment will be grounded.
	13. Spills	13. Spill and absorbent materials will be readily available; all waste materials generated will be contained in 55-gallon drums.
	14. Biological Hazards	14. Follow control measures. If poisonous plants are present, PPE will be upgraded to include tyvek and gloves.
	15. Hand and Power Tools	15. The proper tools will be used for each task, all tools will be inspected before each use, damaged tools will be removed from service, tools will be used in accordance with manufacturer's instructions.
	EQUIPMENT USED	INSPECTION REQUIREMENTS
1. Level D PPE 2. First Aid Kits 3. Portable Eyewash 4. Fire Extinguishers 5. Heavy Equipment 6. Hand and Power Tools	1. Pre-use inspection 2. Monthly inspections will be performed on first aid kits. 3. Portable eye wash will be inspected monthly. 4. Monthly inspections will be performed on fire extinguishers 5. Conduct pre-use inspections 6. Conduct pre-use inspections	1. Personnel have read and comply with APP 2. Site specific training 3. At least 2 individuals on-site will have current CPR and First Aid training 4. Instruct personnel on proper use of fire extinguishers 5. Competent operators will be used 6. Instruct personnel on proper use of hand and power tools

ACTIVITY HAZARD ANALYSES

Project: <u>Bains Gap Road Area</u>		Location: <u>Fort McClellan, Anniston, Alabama</u>
Activity: <u>Establish geophysical test lines and grids</u>		
MAJOR STEPS	POTENTIAL HAZARDS	PROTECTIVE MEASURES/CONTROLS
1. Establish geophysical test lines and grids in study areas.	1. Exposure to MEC/chemical hazards	1. Wear Level D PPE; follow procedures in the MEC Operational Plan; practice contamination avoidance; follow good personal hygiene practices.
	2. Back Injuries	2. Site personnel will be instructed on proper lifting techniques; Mechanical devices should be used to reduce manual handling of materials; team lifting should be utilized if mechanical devices are not available; Instruct personnel on proper lifting techniques.
	3. Temperature Extremes	3. Site personnel will be trained about signs and symptoms of heat and cold stress; TtECI Program EHS 4-6 will be followed.
	4. Slips/Trips/Falls	4. Maintain work areas safe and orderly; unloading areas should be on even terrain; watch for uneven terrain, stumps, vegetation in walk areas; mark tripping hazards and repair if possible.
	5. Hand and Power Tools	5. The proper tools will be used for each task, all tools will be inspected before each use, damaged tools will be removed from service, tools will be used in accordance with manufacturer's instructions.
	6. Dropped Objects	6. Steel toe boots will be worn.
	7. Eye Injuries	7. Safety glasses will be worn. A portable eye wash station will be located adjacent to work activities.
	8. Sharp Objects	8. Cut resistant work gloves will be worn; All hand and power tools will be maintained in safe condition; first aid kits will be available by work area.
	9. Biological hazards	9. Follow control measures.
EQUIPMENT USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
1. Level D PPE 2. First Aid Kits 3. Portable Eyewash 4. Fire Extinguishers 5. Conventional Survey Equipment 6. Hand and Power Tools	1. Pre-use inspection 2. Monthly inspections will be performed on first aid kits. 3. Portable eye wash will be inspected monthly. 4. Monthly inspections will be performed on fire extinguishers 5. Conduct pre-use inspections as per manufacturer's recommendations 6. Conduct pre-use inspections	1. Personnel have read and comply with APP 2. Site specific training 3. At least 2 individuals on-site will have current CPR and First Aid training 4. Instruct personnel on proper use of fire extinguishers 5. Competent operators will be used 6. Instruct personnel on proper use of hand and power tools

ACTIVITY HAZARD ANALYSES

Project: <u>Bains Gap Road Area</u>		Location: <u>Fort McClellan, Anniston, Alabama</u>
Activity: <u>Conduct geophysical surveys</u>		
MAJOR STEPS	POTENTIAL HAZARDS	PROTECTIVE MEASURES/CONTROLS
1. Conduct geophysical survey in study areas.	1. Exposure to MEC/chemical hazards	1. Wear Level D PPE; follow procedures in the MEC Operational Plan; practice contamination avoidance; follow good personal hygiene practices.
	2. Back Injuries	2. Site personnel will be instructed on proper lifting techniques; Mechanical devices should be used to reduce manual handling of materials; team lifting should be utilized if mechanical devices are not available; Instruct personnel on proper lifting techniques.
	3. Temperature Extremes	3. Site personnel will be trained about signs and symptoms of heat and cold stress; TIECI Program EHS 4-6 will be followed.
	4. Slips/Trips/Falls	4. Maintain work areas safe and orderly; unloading areas should be on even terrain; watch for uneven terrain, stumps, vegetation in walk areas; mark tripping hazards and repair if possible.
	5. Hand and Power Tools	5. The proper tools will be used for each task, all tools will be inspected before each use, damaged tools will be removed from service, tools will be used in accordance with manufacturer's instructions.
	6. Dropped Objects	6. Steel toe boots will be worn or other sturdy work shoes if the steel toe boots interfere with the survey for magnetic anomalies.
	7. Eye Injuries	7. Safety glasses will be worn. A portable eye wash station will be located adjacent to work activities.
	8. Sharp Objects	8. Cut resistant work gloves will be worn; All hand and power tools will be maintained in safe condition; first aid kits will be available by work area.
	9. Biological Hazards	9. Follow control measures.
EQUIPMENT USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
1. Level D PPE 2. First Aid Kits 3. Portable Eyewash 4. Fire Extinguishers 5. Geophysical Survey Equipment 6. Hand and Power Tools	1. Pre-use inspection 2. Monthly inspections will be performed on first aid kits. 3. Portable eye wash will be inspected monthly. 4. Monthly inspections will be performed on fire extinguishers 5. Conduct pre-use inspections as per manufacturer's recommendations 6. Conduct pre-use inspections	1. Personnel have read and comply with APP 2. Site specific training 3. At least 2 individuals on-site will have current CPR and First Aid training 4. Instruct personnel on proper use of fire extinguishers 5. Competent operators will be used 6. Instruct personnel in proper use of hand and power tools

ACTIVITY HAZARD ANALYSES

Project: <u>Bains Gap Road Area</u> Activity: <u>Excavate anomalies</u>		Location: <u>Fort McClellan, Anniston, Alabama</u>
MAJOR STEPS	POTENTIAL HAZARDS	PROTECTIVE MEASURES/CONTROLS
1. Excavation of magnetic anomalies in study areas.	1. Exposure to MEC/chemical hazards	1. Wear Level D PPE; follow procedures in the MEC Operational Plan; practice contamination avoidance; follow good personal hygiene practices.
	2. Back Injuries	2. Site personnel will be instructed on proper lifting techniques; Mechanical devices should be used to reduce manual handling of materials; team lifting should be utilized if mechanical devices are not available; Instruct personnel on proper lifting techniques.
	3. Heavy Equipment Operation	3. Follow procedures. equipment will have rollover protective structures and seat belts; operators shall wear seat belts when operating equipment; do not operate equipment on grades which exceed manufacturer's recommendations; equipment will have guards, canopies or grills to protect from flying objects; ground personnel will stay clear of all suspended loads; all slings chains and ropes will be rated for the load in which it is expected to lift; spills and absorbent materials will be readily available; drip pans, polyethylene sheeting or other means will be used for secondary containment; eye contact with operators will be made before approaching equipment; equipment will not be approached on blind sides; avoid equipment swing areas; know hand signals; all equipment will be equipped with backup alarms.
	4. Temperature Extremes	4. Site personnel will be trained about signs and symptoms of heat and cold stress; TIECI Program EHS 4-6 will be followed.
	5. Slips/Trips/Falls	5. Maintain work areas safe and orderly; unloading areas should be on even terrain; watch for uneven terrain, stumps, vegetation in walk areas; mark tripping hazards and repair if possible.
	6. Vehicular Traffic	6. Spotters will be used when backing up trucks and heavy equipment; trucks and heavy equipment will be equipped with back up alarms; traffic cones/vests will be used when working in public traffic areas.
	7. Overhead Hazards	7. Personnel will be required to wear hard hats.
	8. Dropped Objects	8. Steel toe boots will be worn.
	9. Noise	9. Hearing protection with a noise reduction rating capable of maintaining personal exposure below 85 dBA (ear muffs or plugs) will be worn as needed during heavy equipment operations; all equipment will be equipped with manufacturer's required mufflers.
	10. Eye Injuries	10. Safety glasses will be worn. A portable eye wash station will be located adjacent to work activities.
	11. Sharp Objects	11. Cut resistant work gloves will be worn; All hand and power tools will be maintained in safe condition; first aid kits will be available by work area.
	12. Fire	12. 10 lb. ABC type fire extinguisher will be located adjacent to work area; all gasoline powered equipment will be grounded.
	13. Spills	13. Spill and absorbent materials will be readily available; all waste materials generated will be contained in 55-gallon drums.
	14. Hand and Power Tools	14. The proper tools will be used for each task, all tools will be inspected before each use, damaged tools will be removed from service, tools will be used in accordance with manufacturer's instructions.
	15. Biological Hazards	15. Follow control measures. If poisonous plants are present, PPE will be upgraded to include tyvek and gloves.
EQUIPMENT USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
1. Level D PPE 2. First Aid Kits 3. Portable Eyewash 4. Fire Extinguishers 5. Heavy Equipment 6. Hand and Power Tools	1. Pre-use inspection 2. Monthly inspections will be performed on first aid kits. 3. Portable eye wash will be inspected monthly. 4. Monthly inspections will be performed on fire extinguishers 5. Conduct pre-use inspections 6. Conduct pre-use inspections	1. Personnel have read and comply with APP 2. Site specific training 3. At least 2 individuals on-site will have current CPR and First Aid training 4. Instruct personnel on proper use of fire extinguishers 5. Competent operators will be used 6. Instruct personnel in proper use of hand and power tools