APPENDIX A
DETERMINATION OF APPLICABILITY OF INTERIM GUIDANCE

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DETERMINATION OF THE APPLICABILITY OF INTERIM GUIDANCE For the Gas Instruction Area at Former Schilling Air Force Base (AFB) Salina, Kansas

1.0 INTRODUCTION

1.1 This document details the analysis performed in accordance with "Chemical Warfare Materiel Responses and Related Activities", Interim Guidance, dated 1 April 2009. This document applies to construction or environmental response conducted at a site with a history of CWM- or CAIS-related activities. Installation or district Commanders, or their representatives, will conduct an assessment of the probability of encountering CWM prior to the conduct of ground disturbing (e.g., construction) or other intrusive activities (e.g., range clearance activities, environmental responses), other than a CWM response, at CWM sites or sites where previous encounters with CWM have occurred or where there is evidence (e.g., historical or physical) that CWM may be present. This assessment will be documented and approved by the Commander. The procedures follow:

a. Determine the scope of proposed activities.

b. Determine whether the site is listed on DOD's inventory of CWM sites.

c. Review or conduct Munitions Response Historical Records Review or Archive Search Report to determine the probability of encountering CWM during ground disturbing or intrusive activities. The probability will be documented per DA PAM 385-30, Mishap Risk Management, dated 1 February 2010.

d. If the probability of encountering CWM is categorized as "Seldom" or less (reference Table 1 below), the Commander or a designated representative may accept the risk of conducting activities as a non-CWM site. However, the safety and health plan for the response will include contingency plans for an explosives or munitions emergency response should CWM be encountered. CWM contingency plans will be approved by the Commander or a designated representative.

e. If, during site activities, a munition with an unknown liquid fill or CWM is encountered, all intrusive response activities will be halted until such time as the fill is determined.

Table 1-1. Mishap Risk Management Probability Categories

Probability	Symbol	Definition
Frequent	A	Occurs very often; known to happen regularly.
Likely	B	Occurs several times; a common occurrence.
Occasional	C	Occurs sporadically, but is not uncommon.
Seldom	D	Remotely possible; could occur at some time.
Unlikely	E	Can assume will not occur but not impossible.

1.2 Purpose of Scope of Activities: This assessment is applicable to any intrusive activity (i.e. subsurface disturbance) which would include trenching, footer excavation, grading, borings, well installations, or underground utility construction as examples. This assessment however does not cover and is not applicable for above grade work, facility repairs or routine maintenance that does not involve intrusive ground disturbing activities.

2.0 BRIEF HISTORY

2.1 The U.S. Government constructed the Smoky Hill Army Air Base in 1942, renamed the Smoky Hill Air Force Base in 1946 and renamed Schilling Air Force Base in 1957. The former Schilling AFB consisted of 4,134.72 acres located approximately 2 miles southwest of Salina, Kansas. The base was deactivated in 1949, and reactivated in 1951 to support the Korean conflict. In 1961 the facility became the support base for the 550th Strategic Missile Squadron for the Atlas F Inter Continental Ballistic Missile and Nike Missiles. The base was permanently closed in 1967 and the GSA conveyed the majority of the base to the City of Salina for use as a municipal airport.

2.2 Schilling AFB supported training for WWII pilots for bombing missions. Schilling AFB included numerous special weapons and conventional ordnance igloos, a gas instruction building and gas chambers, skeet ranges, an aircraft target butt, aircraft burning/training area, and a missile maintenance building. According to the ASR, “Area C” at Schilling AFB included a “Gas Instruction Building”, “West Skeet Range” and “South Skeet Range”. The ASR designated a Risk Assessment Code (RAC) of 1 for Area C. The ASR Supplement referred to this area as Range Complex No.1 that included sub ranges: “Gas instruction area”, “Skeet Range No.~~3~~2”, and “Skeet Range No.1”.

2.3 This Site Inspection project includes the former gas instruction building and decontamination area and will be collectively referred to as the "gas instruction area". The gas instruction building no longer exists on the site and only a former radio transmitter building located approximately 100 yards to the south is still standing. Approximately 100 square yards of land was planned to have been used for exercises, using liquid mustard on the ground, for the purpose of decontamination training. The location of the planned mustard ground decontamination training area is unknown. The gas instruction building was also presumably used for decontamination practice. Based on the site history and usage, the 2003 ASR and the ASR Supplement 2004 speculated that the potential exists for the presence of agent or agent breakdown products in the media. Since the time of publication of the 'Interim Guidance for Biological Warfare Materiel (BWM) and Non-Stockpile CWM Response Activities', 5 September 1997, chemical agent contaminated media and CAIS 951/952 have no longer been classified as CWM.

2.4 The Former Schilling AFB currently occupies the Salina Municipal Airport and surrounding airport facilities. The property and surrounding areas are owned by the Salina Airport Authority (SAA), Kansas State University, various businesses, and private residences. The gas instruction area site is located with the Salina Airport Authority's Aircraft Operation Area. A SI for conventional ordnance was conducted by Shaw Environmental, Inc. in December 2008.

3.0 PROBABILITY OF ENCOUNTERING CHEMICAL WARFARE MATERIEL

The 2003 ASR and the ASR Supplement 2004 conclude that the probability of finding pure mustard bottles from CAIS K941/2 is unlikely. From the historical documentation the most reasonable scenarios would be either finding mustard partially decontaminated in media and/or intact vials of dilute agent Chemical Agent Identification Set (CAIS) K951/952.

Table 3-1. Probability Evaluation for Schilling AFB

Scenario	Hazard Probability
Intact 3.5-4 oz bottles of Mustard	Unlikely
Intact 40ml vial from CAIS 951/952	Seldom
Chemical Agent Contaminated Media	Seldom

4.0 CONCLUSIONS

It is improbable that CWM, as bottles of pure mustard, would be found on the site. The 'Interim Guidance for Biological Warfare Materiel (BWM) and Non-Stockpile CWM Response Activities', 5 September 1997, states that neither chemical agent contaminated media nor CAIS 951/952 are considered to be CWM. Rather, if found they are classified as hazardous waste. Therefore, Area C at Schilling AFB is not a CWM site.

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FINAL

APPENDIX B
ACCIDENT PREVENTION PLAN

CHEMICAL WARFARE MATERIEL
SITE INSPECTION
FOR SCHILLING AIR FORCE BASE
SALINA, KANSAS

prepared for:

U.S. ARMY ENGINEERING AND SUPPORT CENTER, HUNTSVILLE

and

U.S. ARMY CORPS ENGINEERS, KANSAS CITY DISTRICT

Contract W912DY-04-D-0005
Delivery Order 0011

prepared by:

PARSONS
1700 Broadway, Suite 900

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May 2010

Corporate Safety Officer
Ed Grunwald, C.I.H.
678-969-2394

5/3/2010

Chris tenBraak
Project Manager
303-764-1923

5/3/2010

Kenneth J. Stockwell, P.E.
Vice President
678-969-2351

5/3/2010

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SECTION 1
BACKGROUND INFORMATION

1.1. INTRODUCTION

Accident prevention is a key program element to achieve compliance and strive towards our ultimate goal of zero safety incidents. Personnel active in site operations will be thoroughly familiar with the programs and procedures outlined in this Accident Prevention Plan (APP) prior to conducting work at the site.

1.2. PROJECT AUTHORIZATION

1.2.1. Under Contract W912DY-04-D-0005 and Delivery Order 0011, Parsons is serving as the prime contractor to the USAESCH for the CWM Site Inspection at Schilling AFB. This project falls under the DERP/FUDS. The Project Team will consist of Parsons, CARA, USAESCH, and USACE Kansas District as well as other government and non-government agencies with specific expertise for implementation of specialized components of the field operations.

1.2.2. This APP covers the CWM SI at Schilling AFB located in Salina, Kansas. The project will focus on the site inspections while adhering to the highest levels of safety for the public and project staff. Primary project activities will include site reconnaissance, geophysical mapping, anomaly selection and reacquisition, intrusive excavation, and sampling.

1.3. HAZARDOUS ACTIVITIES ASSOCIATED WITH CWM SI PROGRAM

1.3.1 The SI work at Schilling AFB will involve potentially hazardous activities during the course of operations. Chapter 2 of the Site Safety and Health Plan (Attachment 1 to this APP) identifies the hazards associated with the project activities. The Activity Hazard Analysis (AHA) for each activity is presented as Attachment 2 to the APP and details each activity and preventative measures for avoiding accidents. Personnel involved with hazardous tasks will be qualified to participate by previous or site specific training, as applicable.

1.3.2 The following is a list of activities associated with the work being performed:

- Project Mobilization/Demobilization
- Vegetation Removal
- Digital geophysical mapping (DGM)
- Land Survey
- Soil Sampling

- Personal Decontamination Station
- Decontamination of Items
- Emergency Rescue
- Air Monitoring
- Headspace Screening
- DAAMS Placement/Retrieval
- Chemical Warfare Materiel

1.4. PARSONS ACCIDENT EXPERIENCE

Parsons has a policy of compliance with all governing safety standards and regulations, and a safety performance goal of zero accidents, operational mishaps, and injuries/illnesses. As of January 2006, Parsons' Experience Modification Rate (EMR) is 0.60. Additional safety documentation specific to Parsons is included as Attachment 3 to this APP.

SECTION 2
STATEMENT OF SAFETY AND HEALTH POLICY

2.1. PARSONS CORPORATE SAFETY AND HEALTH POLICY STATEMENT

2.1.1. As an industry-leading engineering, construction, and technical services firm, Parsons is firmly committed to maintaining a safe and healthy working environment at all its offices and project facilities. We share the National Safety Council Safety and Health Code of Ethics as the principles guiding our commitment to safety.

1. We will hold safety and health as our highest core value.
2. Executive management will lead the safety improvement process.
3. Safety will be a responsibility shared by everyone in our organization.
4. Safety performance will be a key indicator of our organizational excellence and will be incorporated into our business processes.
5. We will communicate safety performance openly with employees.
6. All employees will be given the knowledge and skills necessary to safely perform their jobs.
7. We will extend our safety efforts beyond the workplace to include transportation, homes, and communities.
8. We will continually strive to improve our safety and health processes.

2.1.2. To meet its health and safety objectives, all Parsons employees are expected to act proactively with regard to health and safety issues. This requires the combined efforts of a concerned management, responsible and knowledgeable supervision, and conscientious, well-trained employees.

2.1.3. Parsons will take all reasonable action to meet or exceed the applicable occupational health and safety requirements, domestically and internationally, and will continuously monitor and improve operations, procedures, technologies, and programs that are conducive to maintaining a safe and healthy working environment.

2.2. PARSONS SAFETY, HEALTH, AND RISK PROGRAM

Parsons has developed a Safety, Health, and Risk Program (SHARP) for implementation of key safety initiatives on all Parsons' projects. All Parsons PMs maintain a copy of this document in their office to ensure application and conformance on all projects.

2.3. PARSONS SAFETY GOALS

Parsons goal is zero accidents and zero injuries with work tasks designed to minimize or eliminate hazards to personnel, processes, equipment, and the general public. No employee should ever perform a task that may endanger their own safety and health or that of others.

SECTION 3
RESPONSIBILITIES AND LINES OF AUTHORITY

3.1. LEVELS OF SAFETY RESPONSIBILITY AT PARSONS

3.1.1. Parsons Corporate Safety Personnel

Parsons corporate safety personnel are required to develop, communicate, and oversee Parsons health and safety programs at all Parsons business units. These employees will assist Parsons business unit managers regarding health and safety regulations, reporting requirements, safety training, and other related issues. Corporate safety personnel are responsible for monitoring the effectiveness of Parsons health and safety programs, conduct audits, ensure that all injuries and near misses are fully investigated, and develop OSHA reporting and worker's compensation claim procedures. As part of corporate policy, safety information and statistics will be collected and maintained for all Parsons business units. Parsons corporate safety personnel also keep senior management informed of significant internal and external developments regarding health and safety.

3.1.2. Parsons Management and Supervisory Personnel

Supervisors and members of management, at all levels within Parsons, will comply with the Company's Health and Safety Policy and ensure that the applicable health and safety requirements at each domestic and international office and project facility are effectively implemented and monitored at all times. The supervisors and members of management will insure that the policies are effectively integrated with the preparation of proposals, project planning, and project execution. The safety performance of subcontractors will also be monitored in accordance with contract specifications as required by the contract with the client. Safety information and statistics will be reported to Parsons Corporate Safety Manager by personnel serving as supervisors or managers on a consistent and regular basis.

3.1.3. Parsons Employee Responsibility

Health and safety is the responsibility of everyone at Parsons. The Parsons employee, to include subcontractors of Parsons, is required to exercise maximum appropriate care and good judgment at all times regarding health and safety, and adhere to safety procedures to prevent accidents and injuries. Any accidents or injuries either suffered by or witnessed by employees will be promptly reported to supervisory personnel. In order to better plan and avoid possible future accidents or injuries, the Parsons employee is required to promptly report any near misses or close calls. The employees are also required to promptly report any unsafe conditions, equipment, or practices to supervisory personnel in order to ensure a safe working environment.

3.2 LINES OF AUTHORITY REGARDING SAFETY

It is important for each employee involved with the project to know and understand the lines of authority. The organizational structure of supervisory personnel for this project is outlined in Chapter 2 of the WP. All personnel will be informed of this organization structure during the training phase of the project. A list of contacts is included in Chapter 16 of the SSHP (Attachment 1).

3.3 SAFETY VIOLATION AND NONCOMPLIANCE

If a safety violation occurs, the individual (supervisor, manager, and employee) or company will be notified of the issue and the situation will be documented. After documentation is completed, the safety violator will be required to submit a written plan of action to correct the problem within two days of notification. Failure to comply will result in disciplinary action against the individual or the individual's company. If the violation is such that work on the site is deemed unsafe, work will be stopped until the problem is corrected and the UXOSO/SSHO inspects the site for safety. Once the corrections are in place and the site has been inspected for compliance, the UXOSO/SSHO will notify the SM when work may resume. Examples of Subcontractor Safety Violation and Noncompliance forms are provided in Appendix D of the PWP.

SECTION 4
SUBCONTRACTORS AND SUPPLIERS

Each subcontractor is required to abide by all site safety and health regulations. Parsons will work closely with each subcontractor to ensure they are aware of the health and safety regulations that apply to the work site. Personnel arriving on-site to conduct business or provide a service will first attend an initial site-specific safety briefing. If returning to the site, the individual will be required to register and sign in at the office or report to the team leader before beginning work. The site-specific safety briefing will inform the individual of the policies and regulations that apply to the subcontractor while on-site. The briefing will also include hazards associated with the individual's area of work, as well as hazards specific to the site. Documentation of the subcontractor's attendance will be generated and the personnel involved will agree to abide by all site regulations.

Table D-4.1
Subcontractors and Suppliers

Subcontractor or Supplier	Service Provided
Pine Environmental Services, Inc. 4037 Darling Court, Suite D Lilburn, GA 30047 (800) 842-1088 (770) 925-2811 (fax)	**Environmental Instrument Rentals**
Exploration Instruments (EXI) 2600 Longhorn Boulevard Suite 108 Austin, TX 78758 (512) 346-4042 (512) 832-5233 (fax)	**Schonstedt Equipment Rentals**
Rapid 2-Way 6440 Norwalk Road Suite L Medina, OH 44256 (330) 725-4367 (330) 722-3721 (fax)	**Radio Rentals**
Demil Metals P.O. Box 126 Glencoe, IL 60022 847-266-0117	**Hazardous Waste Destruction and Disposal**

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SECTION 5
TRAINING

5.1. GENERAL

Table B-5.1 lists the training requirements for various project personnel. Site personnel are grouped into categories of supervisors; field teams; medical support; visitors; and brush clearing, land surveyors, and construction teams. With respect to training requirements, the supervisors are the Field Team Leader (FTL) and the Site Safety and Health Officer (SSHO). The field teams include the geophysical and reacquisition personnel, down range personnel, air monitoring personnel, rescue team, and the Personnel Decontamination Station (PDS) staff. Medical support may consist of the onsite paramedics and members of the hospital emergency room staff. Visitors are those workers, such as deliverymen, repairmen, or subcontractors, who will not enter the active Exclusion Zone (EZ) or Contaminant Reduction Zone (CRZ) and who will be escorted during their time onsite. The remaining teams consist of the brush clearers, land surveyors, and construction teams. These teams will be conducting work at the site but not during activities involving an active EZ or CRZ. The required training is shown in Table B-5.1; however, additional training may be required at the discretion of the SSHO.

5.1.1. Initial Training

All field personnel must have received training from their employer complying with those requirements specified by the USACE in EM 385-1-1 and 29 CFR 1910.120. All site personnel who will work in either the CRZ or EZ during the project shall have completed this training. These personnel must also complete three days of supervised field experience. Copies of certificates of completion, as required, for Hazardous Waste Operations and Emergency Response (HAZWOPER) initial 40-hour or refresher course, medical status, first aid, and cardiopulmonary resuscitation (CPR) training, as applicable, will be maintained onsite for review.

5.1.2. Supervisory Training

5.1.2.1. The SSHO and FTL, as individuals responsible for supervising personnel engaged in site work will have at least eight additional hours of supervisory training. This specialized training includes the employer's safety and health program and the associated employee training program, personal protective equipment (PPE) program and health hazard monitoring procedures and techniques.

5.1.2.2. In addition, the SSHO will have completed the 30-hour OSHA construction safety class or meet equivalent training requirements specified in EM 385-1-1 Paragraph 01.A.17. This requirement must be met by the SSHO at least once every three years.

Table B-5.1
Training Requirements

Training Content	Duration (If specified)	Frequency (If specified)	Personnel Categories (see Section 5.1)				
			Supervisors (SSHO, SM)	Field Teams	Medical Support	Visitors	Brush Clearing, Land Surveyors, Construction
Health and Safety for Hazardous Waste Operations and Emergency Response – 29 CFR 1910.120	40-Hours	Once	☑	☑			
Health and Safety for Hazardous Waste Operations and Emergency Response (Refresher) - 29 CFR 1910.120	8-Hours	Annually	☑	☑			
Supervised Field Experience	3-Days	Once	☑	☑			
Supervisor's Health and Safety for Hazardous Waste Operations and Emergency Response – 29 CFR 1910.120	8-Hours	Once	☑				
Construction Safety Training (to comply with EM 385-1-1 01.A.17.)	30-Hours	Every 3 years	☑[1]				
Site-Specific Training (see Section 5.2 for training contents)	-	Once	☑	☑	☑[2]		☑
Site-Specific Non-Stockpile Medical Training	8-hrs	Once per year			☑		
Hazard Communication, Hazards of Materials Used/Encountered Emphasis on Chemical Agents & Industrial Chemicals	-	Once	☑	☑	☑		☑
First Aid and CPR (Minimum of 2 Trained Personnel On Site) - Equivalent to American Red Cross Training	-	Every 3 years for First Aid; every year for CPR	☑[3]	☑[3]	☑[3]		☑[3]
Bloodborne Pathogen – 29 CFR 1915.1030 Protective Equipment, Containment and Disposal of Waste	-	Annually	☑	☑	☑		☑
Visitor Training - Operational Activities & Hazards, Boundaries of Work Area and Entry/Exit, Emergency Evacuation & Assembly Points, PPE	-	Per visit				☑	
Tailgate Safety Meetings - Potential Hazards & Risks, Encounters with Hazardous Materials to Date, Daily Activities	-	Daily, prior to operations	☑	☑	☑	☑	☑

[1]SSHO is the only person required to have this training.
[2]Onsite personnel only (paramedics).
3 A minimum of 2 trained personnel on site. Any of the personnel categories may have workers trained in First Aid/CPR.

5.2. SITE-SPECIFIC TRAINING

5.2.1. Site-specific training will be provided for site workers including persons who might enter the active EZ or who are expected to work onsite for more than 3 days at a time. Training will be conducted prior to the job start-up and as needed thereafter. The Project Safety and Health Officer (PSHO) or the SSHO will conduct initial site-specific training prior at job start-up to ensure that employees have a thorough understanding of the APP, standard operating procedures (SOPs), and physical, safety, biological, and chemical hazards of the site. This training will be conducted as necessary prior to new employees entering the EZ. Site-specific health and safety training includes the following topics.

1. Site history and background.
2. Names of onsite employees and their duties.
3. Personnel responsibilities for safety and health.
4. Review of the APP.
5. Acute and chronic effects of exposure to hazardous substances, such as chemical agents, that may be present, characteristics of chemical agents, the potential routes and symptoms of exposure for these substances, the exposure limits, and the level of personal exposure that can be anticipated.
6. Air monitoring procedures, including the functions, limitations, use, and maintenance of monitoring equipment.
7. SOPs prepared specifically to address various aspects of the project.
8. Site control measures.
9. Fire prevention measures.
10. Engineering controls, such as dust suppression techniques.
11. Personal protective equipment (PPE).
12. Discussion of action levels for changing site PPE or evacuating the site.
13. Heat or cold stress prevention, treatment, and monitoring.
14. Proper use of heavy equipment and machinery, if required.
15. Threatened and endangered species.
16. Biological hazards including, snakes, plants, and insect-borne disease.
17. Other physical hazards such as slips, trips, and falls; noise; electrocution; being struck by something and being caught in or between something.
18. Activity Hazard Analyses.
19. Personal cleanliness and restrictions on eating, drinking, and smoking.
20. Emergencies and review of emergency procedures and facilities, including universal precautions.
21. Responsibilities and procedures for maintaining quality control (Chapter 4 of the PWP).

5.2.2. Employees will also be instructed in the use of the buddy system, which is a method of organizing work groups so that there is someone that is always available to:

- Provide his or her partner with assistance in an emergency,
- Observe his or her partner for signs of chemical or physical exposure,
- Periodically check the integrity of his or her partner's PPE, and
- Notify the emergency response personnel when an emergency occurs.

5.2.3. Any emergency response training during a project will be conducted by qualified instructors. The qualifications are relative to the specific emergency response operation being conducted and are outlined in EM-385-1-1.

5.2.4. All employees will be made aware of the project emergency assistance network, the most probable route of evacuation from the site in the event of an emergency, and other emergency procedures included in the Project Plans. All employees will be briefed on the procedures and hazards specific to the site.

5.2.5. As part of the site-specific training, chemical agent training will be provided for all onsite personnel in accordance with DA PAM 40-173 and DA PAM 385-61. Topics that will be covered include:

- Exposure routes and potential health effects.
- Methods of detecting a release (i.e., MINICAMS, industrial monitor, chemical agent odor).
- Signs and symptoms of exposure.
- Emergencies and emergency procedures, including: reasons to evacuate and evacuation procedures, proper use of escape breathing apparatus, decontamination, emergency equipment, first aid, hospital routes, emergency contacts, etc.
- Safe work practices (e.g., use of buddy system, contaminant control procedures, etc.).

5.2.6. At the completion of site-specific training, all employees will be required to sign a form that states they have received site-specific training, and read, understood, agreed with, and will abide by the health and safety procedures outlined in the APP and the SSHP. Appendix D of the PWP contains a Plan Acceptance Form.

5.2.7 Employees will be instructed to follow procedures outlined in the Salina Airport Authority Property Safety Plan provided in Appendix E.

5.3. HAZARD COMMUNICATION

In accordance with the OSHA Hazard Communication Standard (29 CFR 1920.1200 and CFR 1926.59), copies of all material safety data sheets (MSDS) for hazardous chemical materials that are used during site operations or that are present onsite will be available onsite from the SSHO. Hazard communication training in accordance with 29 CFR 1920.1200 and CFR 1926.59, DA PAM 40-173, DA PAM 385-61 and EM 385-1-1 will be presented during the initial training. Training will include, but not be limited to, all hazards or potential hazards associated with site activities, and any hazardous chemical materials brought to or found on site. MSDS for chemicals potentially present are maintained on site by the SSHO.

5.4. FIRST AID, CPR AND BLOODBORNE PATHOGENS

Personnel assigned to conduct fieldwork for this project do not conduct first aid or CPR as a primary job function. Rather, selected employees have been trained in CPR and first aid for emergency use only. Indoctrination to the bloodborne pathogens standard (29 CFR 1910.1030) will be provided to employees either during their first aid training or during the initial site health and safety meeting. Acting in the capacity of a designated emergency first aid provider is not mandatory, and anyone who is uncomfortable with the possibility of being so designated should notify the SSHO. In accordance with EM-385-1-1, at least two persons currently certified in CPR and first aid shall be present on site at all times during site operations. For some field activities, medical support will be onsite in the form of two registered emergency medical technicians (EMTs), at least one of which will be certified in advanced life support (ALS).

5.5. VISITOR TRAINING

When visitors arrive onsite, a site-specific visitor safety briefing shall be given by the SSHO. The visitor training will include discussion of operational hazards and activities, boundaries of work zones, entry and exit points, emergency evacuation, assembly points, and required PPE.

5.6. TAILGATE SAFETY MEETINGS

All personnel working at the project site must attend the daily "tailgate" safety meeting. This meeting, conducted by the SSHO, will cover specific health and safety issues, site activities for that day, changes in site conditions, topics covered in the initial health and safety meeting as they apply to daily activities, PPE, emergency procedures, weather conditions, potential chemical and physical hazards, biological hazards, etc. Issues addressed in the daily tailgate meeting will be documented on a form, which will be signed by all the attendees and retained by the SSHO. Example Daily Site Training Outlines and a Daily Safety Training Attendance Log are provided in Appendix C of the PWP.

5.7. TRAINING DOCUMENTATION

5.8.1. Documentation of training requirements is the responsibility of each employer. Written documentation verifying compliance with 29 CFR 1910.120 (e)(3), (e)(4) (as applicable) and (e)(8) must be submitted to the SSHO prior to entering the site. Types of training documentation include 40-hr HAZWOPER, 8-hr refresher, supervisor training, 30-hr OSHA construction safety, UXO, bloodborne pathogens, HAZCOM, first aid, CPR, current physician's certificate, respiratory protection training and fit testing, and hearing conservation training. Documentation of all workers' current training credentials will be kept on site. Daily tailgate meetings will be documented using a form similar to the sample form presented in Appendix D of the PWP.

5.8.2. All personnel onsite conducting MEC or CWM operations must meet the requirements of DID MR-025. Non-UXO-qualified personnel will be given training in the awareness of the various types of MEC and CWM for the site.

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SECTION 6
SAFETY AND HEALTH INSPECTIONS

6.1. RESPONSIBILITY

6.1.1. As part of the Parsons SHARP Management, roles and responsibilities for safety audits, inspections and recordkeeping have been established. For each project, the Parsons PM is responsible for ensuring that routine internal safety inspections are performed, for tracking corrective actions to completion, and performing inspections. The Parsons PSHO is responsible for developing and implementing the project safety and health inspection program contained in this plan.

6.1.2. The SSHO is responsible for conducting safety and health inspections or walk arounds, identifying and reporting deficiencies, and working with the project team to develop corrections. The SSHO will follow-up on any deficiency in a timely manner and halt operations if necessary in order to ensure that individuals are not exposed to an unsafe environment.

6.2. INSPECTIONS

6.2.2. Safety inspections are conducted by physically walking around the work areas and observing conditions for routine and emergency access, evacuation technique, PPE, work practices, site access control, first aid equipment, fire fighting equipment, sanitation. The inspections may include conversations with workers and supervisors and review of certifications and training documentation.

6.2.3. All deficiencies or nonconformances will be documented. If safety hazards exist, it may be necessary to stop work until corrections are in place. Many deficiencies can be corrected immediately by placing barriers, installing signs, changing procedures, etc. The status of each deficiency will be tracked by the SSHO to ensure that a correction is made. If necessary, the SSHO will stop work until the deficiency is corrected. Follow-up reporting on deficiencies will be included on succeeding safety and health inspection documentation until the deficiency is resolved.

6.3. RECORDKEEPING

A record of each inspection will be maintained in the project files. The record must include the name of the inspector, unsafe conditions and work practices identified, and actions taken to correct unsafe conditions and work practices. A standard safety inspection form has been developed to assist the inspections and provide documentation of safety and health nonconformances. The Safety Inspection Form is located in Appendix D of the PWP.

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SECTION 7
SAFETY AND HEALTH EXPECTATIONS, INCENTIVE PROGRAMS, AND COMPLIANCE

7.1. SAFETY GOALS AND OBJECTIVES

As stated in the company's corporate safety and health policy statement (Section 2 of this APP), Parsons holds safety and health as our highest core value. It is Parsons' objective to maintain a safe working environment and complete every job with zero accidents.

7.2. PARSONS SAFETY AWARD PROGRAM

7.2.1. Project management meets on a regular basis to maintain and support an incentive program based on the safety performance of Parsons and subcontractor employees.

7.2.2. It has been established that a necessary tie-in to a meaningful safety program is a program that rewards exemplary conduct. To any true professional, the monetary value of an award is transcended by the recognition given. To present a plaque for demonstrating dedication to creating a safe and healthy environment; to dedicate a prime parking space for the use of the individual who has recognized a hazard and has eliminated it or devised a method of managing it; or to let an individual's or group's peers know, in some way, that individual or group has taken an extra step where safety is involved, is the type of award best appreciated by the professional.

7.3. SAFETY VIOLATIONS

7.3.1. In the event of a safety violation, the individual (supervisor, manager, employee) or company will be notified of the issue and the situation will be documented. After documentation is completed, the safety violator will be required to submit a written plan of action to correct the problem within two days of notification. Failure to comply will result in disciplinary action against the individual or the individual's company. If the violation is such that work on the site is deemed unsafe, work will be stopped until the problem is corrected and the SSHO inspects the site for safety. Once the corrections are in place and the site has been inspected for compliance, the SSHO will notify the FTL (or site manager) when work may resume.

7.3.2. Each member of the project team will play a part in keeping operations safe. A brief description of each employee's safety responsibility is listed below:

- Senior management is responsible for leadership and support of the safety program, for its effectiveness and improvement, and for providing all the safe guards necessary to assure a safe working environment.

- Supervisors are responsible for developing proper attitudes towards safety in themselves, and in those they supervise. Supervisors must ensure that all operations are performed with the highest regard for the safety of all personnel involved.
- Employees are responsible for genuine cooperation with all aspects of the safety program, including compliance with all policies and procedures. Employees need to continually practice safety while performing their work duties.

7.3.3. Parsons holds the SSHO, FTL/SM, PSHO and PM accountable for maintaining project safety and health. All of these persons may be subject to safety inspections by Parsons senior management. These inspections are used to measure safety and health performance and to provide feedback.

SECTION 8
ACCIDENT REPORTING

8.1. ACCIDENT REPORTING

8.1.1. In the event an accident occurs at a site, the SSHO will investigate the accident after all emergency actions have been taken. ENG Form 3394 will be filled out by the SSHO and submitted to the Parsons PSHO. A verbal notification should be given to the PSHO that the form is being filled out.

8.1.2. An accident will be reported immediately to the USAESCH if any of the following occur as a result of the accident:

1. Fatality.
2. Injury to three or more persons who are admitted to the hospital.
3. Property damage in the amount of $2,000 or more.
4. Unfavorable criticism of the Army.
5. A permanent total disability.
6. A permanent partial disability.

8.1.3. For Items 1 and 2, OSHA must be notified within 8 hours of the accident. If possible, notification should go through the PSHO; however, it may be necessary to make the notification directly in order to meet the deadline.

8.1.4. Parsons has an online incident reporting tool for internal reporting. This system can be used to file the initial report and the incident detail report; however, it is necessary to have access to the Parsons PWeb in order to use this tool. The incident reporting tool can be accessed at the following link.

PWeb.parsons.com/PIT/safety/default.htm

8.1.5. Other lost-time or OSHA recordable accidents will be formally reported (i.e. written report) to the USAESCH within 5 days. The onsite USAESCH representative will be verbally notified within one day of any accident or injury that may require reporting. An OSHA 300 log of work-related injuries and illnesses will be maintained by the PHSO at the Parsons Denver office.

8.1.6. Exposure hours must be reported each month for exposure analysis. The exposure hours consist of the number of hours worked by Parsons personnel in the field plus the hours worked by subcontractors. The reporting of exposure hours is submitted internally by the Parsons PM.

8.2. ACCIDENT INVESTIGATIONS

8.2.1. Accident investigations are an important element of Parsons safety program because they provide useful information to prevent similar incidents. Incident

investigations identify root causes, system failures, unsafe acts and conditions, and noncompliance with or inadequacy of the APP. All significant near miss, injury, illness, or major equipment or property damage incidents (including work interruptions) require an investigation.

8.2.2. The PM and PSHO must conduct the onsite investigation immediately and prepare an incident investigation report. The PM is responsible for ensuring that all incidents are reported and investigated in a timely manner and that appropriate corrective actions are identified and implemented. The PSHO usually leads investigations with the assistance of the FTL and SSHO.

8.2.3. The general information collected by the accident investigation includes:

Location, time, and date.

Description of the operation being performed at the time of the accident.

Outline of the sequence of events that led up to the accident.

All personnel associated with the work task and incident.

All eyewitnesses.

8.2.4. The investigation team should proceed in the following manner.

1. Identify, secure, and document any evidence, tools, or other materials pertinent to the investigation.
2. Identify and interview all involved employees and eyewitnesses.
3. Provide a private place and time for each individual to prepare a written statement.
4. Prepare and issue a written report.

SECTION 9
EMERGENCY MEDICAL SUPPORT

Emergency medical support is discussed in Chapter 7 of the SSHP (Attachment 1).

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SECTION 10
PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment (PPE) is addressed in Chapter 5 of the SSHP (Attachment 1).

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SECTION 11
SITE PLANS

The CWM SI work will involve potentially hazardous activities during the course of operations. In order to prepare for the potential hazards, site plans have been developed and summarized to ensure the prevention of accidents.

11.1. LAYOUT PLAN

11.1.1. Site Work Zones

11.1.1.1. The Layout Plan will help ensure protection against the hazards presented by confining activities to the appropriate areas. Figure 3.1 of the PWP shows a generalized set up of work zones (i.e., EZ, CRZ, support zone) when intrusive operations are underway. The reader is referred to Chapter 3 of the PWP for general information on the Site Office, equipment staging areas, and CP.

11.1.1.2. To reduce the spread of hazardous materials by workers from the contaminated areas to the clean areas, zones will be delineated to aid in controlling the flow of personnel and equipment between the zones. The establishment of the work zones will help ensure that personnel are properly protected against the hazards present where they are working, work activities and contamination are confined to the appropriate areas, and personnel can be located and evacuated in an emergency. The work zones allow the use of multiple teams or portions of teams conducting excavations simultaneously.

11.1.2. Exclusion Zone (EZ)

11.1.2.1. When conducting intrusive activities during the investigations, the EZ is the area where contamination does or could occur. Within the EZ, personnel performing intrusive operations (excavation, hand digging, auguring, and soil sampling) will wear modified Level D or greater (Levels C or B) PPE. An EZ will be established during these operations to prevent personnel from entering these areas without proper PPE. This boundary will be physically marked by tape or temporary barriers or well defined by physical and geographic boundaries. Parsons personnel and subcontractors will be properly trained in controlling and minimizing access to the EZ. If an unauthorized person enters the EZ, work will stop and he or she will be stopped and escorted to the personnel decontamination station (PDS) where he or she will be met by the SSHO, USAESCH, SUXOS, or FTL/SM in the event there is a need for decontamination or medical assistance. In addition, site control measures will be reevaluated. The unauthorized entry will be recorded in the field notebook.

11.1.2.2. The EZ is based on the Maximum Credible Event (MCE). The actual distance used for the exclusion zone will be the No Significant Effects (NOSE) Distance

and in this case will extend 433 feet from the sampling area boundaries. The EZ is presented on Figure B-11.1 of the SSHP (Attachment 1).

11.1.3. Contamination-Reduction Zone (CRZ)

11.1.3.1 The CRZ is the transition area between the contaminated area and the clean area. The PDS is located within the CRZ and will be established at least 50 meters from the excavation site, preferably upwind in the prevailing wind direction. This zone provides an area to prevent or reduce the transfer of hazardous materials that may have been picked up by personnel or equipment leaving the EZ. The CRZ requires a space of no less than 50 meters in width and 50 meters from the "hot line," or EZ boundary, to the Support Zone.

11.1.4. Support Zone

11.1.4.1. The support zone is considered a clean area and will be located at a sufficient distance from the intrusive activity to ensure the safety of the support zone personnel. The support zone is separated from the CRZ by the contamination control line. Public access beyond the contamination control line will be prevented during intrusive operations.

11.1.1.4.2. The support zone contains the command post and other support supplies. Level D PPE is appropriate apparel within this zone. Contaminated clothing and equipment are not permitted in the support zone. Since activities may be conducted during the winter months, special types of PPE and other safety equipment susceptible to freezing (e.g., eye wash and decontamination solutions) will be stored in a heated space.

11.2. EMERGENCY RESPONSE PLAN

11.1.2.1. The purpose of the Emergency Response Plan is to define the general procedures to protect human health and the environment both in the event of an accident or emergency during the intrusive activities. For specific emergency response and contingency procedures (ERCP), the reader is referred to Chapter 16 of the SSHP (Attachment 1).

11.1.2.2. The ERCPs developed for the CWM SI comply with 29 CFR 1910.120(l) and addresses the following elements which are detailed in the CWM SI SOP document (Emergency Response and Fire Prevention Plan):

- Pre-emergency planning;
- Personnel roles, lines of authority, training, and communications;
- Posted instructions and emergency contacts;
- Emergency recognition and prevention;
- Criteria and procedures for site evacuation;
- Procedures for decontamination and medical treatment;
- Evacuation routes and procedures;
- Emergency alerting and response procedure; and
- Critique of emergency responses and follow-up.

11. 3. SPILL PLAN

11.3.1 The occurrence of chemical leaks or spills is anticipated to be remote on the site based on nature of materials present. There is, however, a potential for the occurrence of spills or leaks during normal SI operations or due to spills from fuels, oils, etc., used in the normal usage of rental vehicles. Procedures for the Spill Plan are located in the CWM SI SOP Document (Emergency Response and Fire Prevention Plan).

11.4. FIRE FIGHTING PLAN

11.4.1 Upon detecting a fire or explosion, employees will determine whether the fire is small enough to readily extinguish with immediately available portable extinguishers or water, or if other fire-fighting methods are necessary. Non-essential personnel will be directed away from the area (upwind) of the fire. Procedures for the Firefighting Plan are provided in the CWM SI SOP Document.

11.5. POSTING OF EMERGENCY TELEPHONE NUMBERS

11.5.1 Emergency telephone numbers for the closest hospitals capable of providing emergency service, Poison Control Center, local Police and Fire Department, and key safety and management personnel from the USACE District, USAESCH, ECBC, and Parsons will be available to the SSHO and will be kept immediately available in the site vehicle (Phase I), or posted in the Site Office, CP and other conspicuous locations (Phase II). The SSHO will be responsible for keeping the list current and for taking necessary action and contacting the appropriate emergency contacts in the event of an emergency. The specific emergency numbers are provided in Chapter 16 of the SSHP (Attachment 1).

11.6. WILD LAND FIRE PREVENTION PLAN

11.6.1 The fire prevention methods outlined in the Emergency Response and Fire Prevention Plan (CWM SI SOP document) will apply and be used by personnel to avoid inadvertently creating fires. These methods will also be followed by site personnel in the notification and treatment of fires should they arise.

11.7. MAN OVERBOARD/ABANDON SHIP

11.7.1 It may be required during some SI field activities to charter a vessel to island areas along some of the coastal regions or to conduct sampling on lakes and reservoirs. The guidelines stated in Section 19.A.04 of EM 385-1-1 for emergency procedures regarding the abandon ship/boat and person overboard procedures will be adhered to.

11.8. HAZARD COMMUNICATION PROGRAM

11.1.8.1 The OSHA Hazard Communications Standard (29 CFR 1910.1200) was promulgated to ensure that all chemicals would be evaluated and information regarding the hazards associated with these chemicals would be communicated to employers and employees. The goal of the standard is to reduce the number of chemically related occupational illnesses and injuries. The Hazard Communication Program is provided in the CWM SI SOP document.

Medical Support Plan

11.1.8.2 Material Safety Data Sheets (MSDS) will be kept onsite for all hazardous chemicals.

11.9. RESPIRATORY PROTECTION PROGRAM

11.9.1 The Respiratory Protection Program provides workers with sufficient information and guidance to adequately protect themselves from potential inhalation hazards during hazardous waste operations. The use of respirators to protect personnel from inhalation hazards is permitted by OSHA when other methods of protection (e.g., engineering controls or changes in work practices) are not feasible. The Respiratory Protection Program is provided the CWM SI SOP document.

11.10. HEALTH HAZARD CONTROL PROGRAM

11.10.1 The health hazard controls will be covered in detail in the SSHP developed for each site.

11.11. LEAD ABATEMENT PLAN

11.11.1 Lead abatement includes the removal of lead-based paint and lead-contaminated dust, the permanent enclosure or encapsulation of lead-based paint, the replacement of lead-painted surfaces or fixtures, and the removal or covering of lead-contaminated soil. Lead abatement is not required as part of the CWM Site Investigations.

11.12. ASBESTOS ABATEMENT PLAN

11.12.1 Contact with asbestos is not anticipated during project field activities. In the unlikely event that asbestos is encountered during operations, workers will be required to avoid the area of contamination and inform the appropriate USACE safety representative of the problem. Since asbestos is a hazardous, toxic waste (HTW) issue, it will be avoided during the CWM SI.

11.13. ABRASIVE BLASTING

11.13.1 Abrasive blasting is not required as part of the Site Investigations.

11.14. CONFINED SPACE

11.14.1 Confined space entry is not anticipated during project field activities. In the unlikely event that a confined space is encountered during operations, workers will be required to avoid the area and consult with the PHSO for further instruction.

11.15. HAZARDOUS ENERGY CONTROL PLAN

11.15.1 This procedure shall be used by Parsons and subcontractor personnel to ensure that the machine or equipment being worked on is isolated from all potential hazardous energy sources, and locked out or tagged out before an employee performs any servicing or maintenance activity where the unexpected start-up or release of energy could cause an injury. Procedures for mitigating and preventing electrical hazards are contained in the CWM SI SOP document (Electrical Safety and Lockout/Tagout Program).

11.16. CRITICAL LIFT PROCEDURES

11.16.1 A critical lift is a non-routine crane lift that requires detail planning and additional or unusual safety precautions. Crane lifts for moving equipment are not anticipated during CWM SI operations. If necessary, crane lift operations will be conducted in a manner to ensure maximum safety. When required, development of critical lift plans will be in accordance with EM 385-1-1. All hoisting operations will be preplanned. Exact size and weights of loads to be lifted will be evaluated based on the manufacturing maximum load limits for the entire range of the lift. Lift geometry including crane position, height of lift, the load radius, and the boom length and angle, for the entire range of lift will be documented. Crane operators will be checked for qualification with proper certification. To simplify the process, a standardized Critical Lift Plan form is located in Appendix D of the Work Plan for use if the need for a critical lift arises.

11.17. CONTINGENCY PLAN FOR SEVERE WEATHER

11.17.1 In the event of severe weather: high winds, electrical storms, tornadoes, extremely hot weather (>100°F), or extremely cold weather (<0°F), it may be necessary to cease operations and evacuate the site. The SSHO will be responsible for monitoring the weather. Should severe weather threaten, the SSHO is responsible for deciding (i.e., in conjunction with the FTL) if site operations should be stopped. The reader is referred to the CWM SI SOP document (Severe Weather Operations) for more detailed information. The reader is referred to Chapter 2 of the SSHP (Attachment 1) for more detailed information.

11.18. ACCESS AND HAUL ROAD PLAN

11.18.1 Roads used during the SI field activities will be used in a safe manner to reduce any potential hazards involving vehicles. Site vehicles will be driven in a safe manner with the driver being licensed and observing the speed limits and adjusting speed to the existing road conditions. Construction of new roadways will require a plan to be submitted to the USAESCH. The plan will address requirements outlined in Section 8.D.1 of the USACE Safety & Health Requirements Manual. The Heavy Equipment and Vehicle Safety procedures are provided in the CWM SI SOP document.

11.18.2 Employees will be instructed to enter the site using access points outlined in the Salina Airport Authority Property Safety Plan provided in Appendix E.

11.19. DEMOLITION PLAN

11.19.1 No building demolition is anticipated for this project and no demolition will be performed by any site team members during the SI field activities.

11.20. EMERGENCY RESCUE (TUNNELING)

11.20.1 Tunneling is not required as part of operations at any of the CWM SI sites. Procedures for any emergency rescue operations in general are presented in the Emergency Response and Fire Prevention Plan in the CWM SI SOP document.

11.21. UNDERGROUND CONSTRUCTION FIRE PREVENTION AND PROTECTION PLAN

Underground construction will not be a part of the operations at of the CWM SI.

11.22. COMPRESSED AIR PLAN

The Compressed Air Plan is an overview of the requirements of 29 CFR 1910.101, .169, and .253. The plan is intended to provide procedures for safely handling gas cylinders and any other pressurized gases used on this project. The Safe Procedures for Handling, Storage and Use of Pressurized Cylinders is provided in the CWM SI SOP document.

11.23. FORMWORK AND SHORING ERECTION AND REMOVAL PLAN

Formwork and shoring erection operations will not be required as part of the CWM SI field activities.

11.24. JACKING PLAN (LIFT)

Jacking operations will not be required as part of the CWM SI field activities.

11.25. SAFETY AND HEALTH PLAN

The SSHP is Attachment 1 to this APP.

11.26. BLASTING PLAN

A Blasting Plan will not be needed as part of the CWM SI field activities.

11.27. DIVING PLAN

Diving is not anticipated as part of the CWM SI field activities.

11.28. PREVENTION OF ALCOHOL AND DRUG ABUSE

Parsons will institute and maintain a program for achieving the objective of drug free workspace. Parsons ensures consistent and uniform application of this policy and, when required interfaces with supervisor and employee to evaluate performance and behavior.

11.28.1. Parsons Corporate Statement of Policy

11.28.1.1 Parsons expects all employees to report to work in a fit condition in order to perform their duties at the utmost levels of safety and efficiency. To that end, Parsons expressly prohibits the unlawful manufacture, distribution, dispensing, possession, use, or sale of a controlled substance or alcohol on its premises at any time. Employees are prohibited from being at work under the influence of these substances. Parsons will reasonably accommodate the efforts of an employee to obtain medical treatment for substance abuse and to return to employment thereafter. However, no provisions of this policy will contravene the provision of the Employee Personal Conduct Policy or preclude the corporation from terminating an employee in accordance with this policy.

11.28.1.2 Parsons has an obligation to safeguard the privacy rights of all employees; however, it is also committed to provide a healthy and safe work environment for all employees and to take reasonable steps to safeguard the health and safety of others and protect the environment in conducting its business.

11.28.2. Safety and Environmental Provisions

11.28.2.1 In some instances employees may be required to undergo random toxicological tests to ensure their continuing fitness for duty to comply with contract mandated requirements or government regulations, or if performing work at locations where the nature of their duties is such that there is the potential for serious physical injury to themselves, to others, or the general public, or potential for significant damage to property or the environment.

11.28.2.2 Assignment of employees to such job sites will be done on a voluntary basis. Employees who refuse to participate in the random testing program and whose job duties would normally expose them to random testing, will be considered for placement in other positions not requiring random testing. Every reasonable effort will be made to accommodate such transfers; however if suitable work for which the employee is qualified is not available, the employee will be subject to termination. A positive test result will lead to immediate removal from the site, in addition to either corrective action in accordance with this policy or the employee's termination in accordance with the Employee Personal Conduct Policy.

11.28.2.3 Searches are another means of protecting the safety of individuals and property at those locations where the nature of the work has the potential for serious injury or damage. Reasonable searches may be conducted of individuals, their personal vehicles, effects, and other areas under the individual's control while at such work sites, or engaged in Parsons business at such sites.

11.28.2.4 Employees will not be detained or searched without their consent. An employee's cooperation in a search at such work sites is a condition of employment. The employee will be required to sign an Acknowledgment and Consent for Random Toxicological Tests and Searches form. Such testing will be performed by the company using qualified contracted agents, or trained employees.

11.28.3. Substance Abuse Testing - Employment Offer

No candidate for employment will be subjected to substance abuse testing prior to the receipt of an offer of employment. Offers of employment, regardless of employment category, must contain a contingency regarding satisfactory completion of substance abuse testing. Failure to submit to or pass an examination will result in immediate disqualification from consideration for placement.

11.28.4. Employee Personal Conduct

11.28.4.1 Employees bear the primary responsibility for their own job performance and for taking any action or undergoing treatment necessary to maintain performance at a satisfactory level.

11.28.4.2 In addition, the corporation may require an employee to submit to a test for alcohol or illegal drugs, based upon reasonable suspicion that the employee's performance or behavior is being adversely affected by use of such substance(s). Reasonable suspicion will be based upon physical manifestations of impairment, or unsatisfactory behavior or job performance (including on-the-job accident or injury) which causes the supervisor and Human Resources Representative to reasonably believe that alcohol or drug abuse may be a contributing factor. Refusal by an employee to take such a test will be viewed as an admission of such use by the employee.

11.28.5. Confidentiality of Records

11.28.1 All information concerning an applicant's or employee's medical condition or test results will be kept strictly confidential, with information released only upon a legitimate need-to-know basis.

11.29. FALL PROTECTION PLAN

11.29.1 Activities to be performed at the site likely do not require fall protection. If workers become exposed to fall hazards, proper precautions will be implemented to ensure safety. Standard guardrail, catch platforms, temporary floors, and safety nets will be utilized based on evaluations by the SSHO. In addition, full body harnesses with a shock absorbing lanyard will be worn by any personnel working at risk of falling more than 6 feet. The lanyard will be adjusted to limit free-fall to no more than 6 feet. Lanyards must be secured to strong structural components (breaking strength of 5,000 lbs per attached employee) or lifelines.

11.30. STEEL ERECTION PLAN

Steel erection activities at the site are not anticipated. Should the need for steel erection arise, a steel erection plan will be provided.

11.31. NIGHT OPERATIONS LIGHTING PLAN

Nighttime operations are not anticipated during the SI field activities.

11.32. SITE SANITATION PLAN

Site sanitation is discussed in Chapter 13 of the SSHP – Personal Hygiene and Decontamination.

11.33. FIRE PREVENTION PLAN

To ensure adequate fire prevention, the SSHO will inspect the site to ensure flammable and combustible materials are being safely stored in appropriately configured storage areas and containers. The SSHO will also ensure that no flammable/combustible materials are stored near any sources of ignition, and that sources of ignition are removed a safe distance from storage areas. If needed, storage areas will be segregated from the remainder of the site using flagging. Portable fire extinguishers shall be located on site. The Fire Prevention Plan is included in the CWM SI SOP document.

ATTACHMENT 1
SITE-SPECIFIC SAFETY AND HEALTH PLAN

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CHAPTER 1
SITE DESCRIPTION AND CONTAMINATION CHARACTERIZATION

1.1 SITE DESCRIPTION

A description of the former Schilling AFB site including location, history, previous investigations, topography, and climate is contained in Chapter 1 of the Site Specific Work Plan (SS-WP).

1.2 CONTAMINATION CHARACTERIZATION

1.2.1 Chapter 3 of the SS-WP provides information regarding the investigation area at the former Schilling AFB. Based on historical information and previous investigations, munitions constituents include:

Table B-1-1
Munitions Constituents at the former Schilling AFB

LOCATION	CATEGORY	CAIS	MC COMPOSITION
Gas Instruction Area	CAIS	Chemical Agent Identification Set (CAIS),	Mustard (H), lewisite (L), chloropicrin (PS), phosgene (CG), and chloroform.

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CHAPTER 2
HAZARD AND RISK ANALYSIS

2.0 INTRODUCTION

Work activities, natural phenomena, and biological and chemical hazards are some factors which may present a risk to workers on this project. However, the overall level of risk is dependent upon the type of work being performed. This chapter identifies the hazards associated with specific tasks being performed during this project and the procedures that are to be employed to prevent accidents, injuries, and illness. The Accident Prevention Plan, as presented in the Programmatic Work Plan (PWP), is incorporated by reference.

2.1 ACTIVITY HAZARD ANALYSIS

2.1.1. Individual hazard analyses have been performed for the tasks associated with the former Schilling AFB CWM SI. The potential hazards have been identified; control measures have been outlined; training requirements and personal protective equipment (PPE) requirements and equipment inspection procedures have been established. The following activities are considered in the Activity Hazard Analyses (AHAs):

- Project Mobilization/Demobilization
- Vegetation Removal
- Digital geophysical mapping (DGM)
- Land Survey
- Soil Sampling
- Personal Decontamination Station
- Decontamination of Items
- Emergency Rescue
- Air Monitoring
- Headspace Screening
- DAAMS Placement/Retrieval
- Chemical Warfare Materiel

2.1.2. Attachment 1 of this SSHP contains AHAs for each of the major tasks identified, including potential hazards, control measures, training and PPE requirements.

2.1.3. If new operations are introduced to this site, a hazard analysis will be performed by the Project Safety and Health Officer (PSHO). If operations change significantly during the course of this project, the hazard analysis will be updated to accommodate these changes. Any changes to PPE or safe operating procedures will be approved by the PSHO. It will be the responsibility of the Site Safety and Health Officer (SSHO) to ensure that the required controls are being properly implemented for each operation or task.

2.2 CLASSIC SAFETY HAZARDS

2.2.1 Slip, Trip, and Fall Hazards

2.2.1.1 Hazard Identification

Work areas may contain slip, trip, and fall hazards for workers, such as:

- Holes, pits, or ditches;
- Slippery surfaces;
- Steep and uneven grades;
- Guy wires and ropes;
- Objects such as nails, metal shards, and broken glass or remnant branches and vegetative debris; or
- Weather conditions such as snow will make surfaces slippery and obscure visibility.

2.2.1.2 Hazard Mitigation and Prevention

Site personnel will be instructed to look for these potential safety hazards and immediately inform the SSHO about any new hazards. If the hazard cannot be immediately removed, action must be taken to warn site workers about the hazard. Proper housekeeping must be maintained on site, particularly adjacent to the command post. Small holes and pits along high foot traffic areas should be covered or barricaded to prevent injury.

2.2.2 Motor Vehicles and Heavy Equipment

2.2.2.1 Hazard Identification

Working with large motor vehicles and heavy equipment can be a major hazard. Injuries can result from equipment hitting or running over personnel or vehicles overturning. Vehicles and heavy equipment design and operation will be according to 29 CFR Subpart O, 1926.600 through 1926.602. The types of heavy equipment anticipated to be used onsite include pick-up trucks, trailers and generators.

2.2.2.2 Hazard Mitigation and Prevention

Procedures for mitigation and prevention of hazards associated with motor vehicles and heavy equipment is contained in the Heavy Equipment and Vehicle Safety SOP in the CWM SI SOP document.

2.2.3 Trenching and Excavation

2.2.3.1 Hazard Identification

No hazards due to trenching and excavation are anticipated at the former Schilling AFB site.

2.2.4 Hazardous Energy Control

2.2.4.1 Hazard Identification

It is important to be aware of hazardous energy to prevent accidents. At Schilling AFB, electricity is the primary hazardous energy of concern. Accidents occur when electrical equipment is not properly used and/or installed. Accidents also occur when equipment is not properly isolated, shut down, and/or de-energized.

2.2.4.2 Hazard Mitigation and Prevention

2.2.4.2.1 The CWM SI SOP document contains procedures for mitigating and preventing electrical hazards.

2.2.4.2.2 Lockout/Tagout procedures will be used for all maintenance procedures to ensure the equipment is isolated from all potential hazardous energy sources (electrical and mechanical). Lockout/Tagout procedures are provided in the CWM SI SOP document.

2.2.5 Pressurized Cylinders

2.2.5.1 Hazard Identification

Compressed air and gas cylinders are used in association with supplied air respirators and analytical instruments (MINICAMS). Hazards arise from leaking cylinders and subsequent gas build up (e.g., hydrogen associated with gas chromatographs) or from the rapid release of compressed gases if a valve is accidentally broken off of the cylinder body. Such an accident can propel the cylinder like a missile.

2.2.5.2 Hazard Mitigation and Prevention

Safe procedures for handling, storage and use of pressurized cylinders are provided in the CWM SI SOP document.

2.3 EXPLOSIVE ORDNANCE AND EXPLOSIVES

2.3.1 Hazard Identification

Although it is unlikely, personnel involved in field activities may encounter MEC that has been fired, disposed, or abandoned and is still intact and live.

2.3.2 Hazard Mitigation and Prevention

2.3.2.1 Field personnel will be given ordnance familiarity training prior to working on the site. Personnel should be alert for UXO and munitions debris. The following general precautions concerning ordnance will be observed at all times:

1. DO NOT touch or move any ordnance items regardless of the markings or apparent condition.
2. DO NOT use radios or cellular phones near suspect ordnance items.
3. DO NOT walk across an area where the ground cannot be seen. If dead vegetation or animals are observed, leave the area immediately due to potential contamination by chemical agent.
4. DO NOT drive vehicles into a suspected MEC area; use clearly marked lanes.
5. DO NOT carry matches, cigarettes, lighters, or other flame-producing devices onto the investigation area.
6. DO NOT rely on color code for positive identification of ordnance items or their contents.
7. Approach ordnance items from the side; avoid approaching the front or rear areas.
8. Always assume ordnance items contain a live charge until it can be ascertained otherwise.

2.3.2.2 The following actions will be taken if ordnance is found:

- Personnel who are not UXO-qualified should leave the immediate vicinity and clearly mark the location from a safe distance. DO NOT touch, move or otherwise disturb the item.
- Do not be misled by the markings on the ordnance item stating “practice bomb” or “inert”. Even practice bombs have explosive charges that are used to mark/spot the point of impact; or the item could simply be marked incorrectly.
- Notify the USAESCH on-site Safety representative upon locating any UXO.

2.4 CHEMICAL HAZARDS

2.4.1 Hazard Identification

Table B-2.1 lists potential CAIS-related contaminants that may have been used at the site and the potential routes of exposure and symptoms for each contaminant that may be encountered. Other information such as Threshold Limit Values (TLVs), Permissible Exposure Limits (PELs), Immediately Dangerous to Life or Health (IDLH) values, Worker Protection Limits (WPLs) and physical properties are also included.

2.4.2 Hazard Mitigation and Prevention

2.4.2.1 Site workers will implement the following actions to reduce or prevent exposure to contaminants:

- Minimize potential for breaking intact CAIS glassware by using hand methods of sampling, where possible.
- Initial hand auguring operations will be performed in Modified Level D PPE and upgraded when suspect CAIS is encountered, or other site conditions warrant upgrading – such as discolored soil, suspected agent in soil, HTRW container found, or unfamiliar odor.
- Gloves will be used at all times during operations in the exclusion zone where the possibility for chemical agent exposure exists.

2.4.2.2 Risk of exposure to chemical hazards can be minimized by not moving or handling suspect CAIS without proper precautions and watching for distressed or dead vegetation that may indicate the presence of chemical hazards. Air monitoring will be conducted in conjunction with the intrusive sampling activities in order to detect the presence of hazardous CAIS chemicals.

2.4.2.3 The concentrations of MCs in soil that are expected at the site are low and do not pose a significant hazard to workers. Use of required PPE specific for intrusive sampling activities will mitigate hazards to worker during these activities.

2.5 PHYSICAL HAZARDS

2.5.1 Underground Utilities Hazards

2.5.1.1 Hazard Identification

Underground utility hazards may exist during intrusive sampling operations. These hazards may include, but are not limited to, utilities such as sewers, telephone, cable, fiber optic, water, fuel, gas, and electrical.

2.5.1.2 Hazard Mitigation and Prevention

Anomaly avoidance will be conducted to reduce underground utility hazards. A UXO Technician will use a Schonstedt magnetic locator (or equivalent) to confirm the selected sample location is free of surface and subsurface ferrous debris. If the selected location is not clear of metallic debris (based on audible signals from the instrument) an alternate sample location will be selected near the original location. This process will be conducted iteratively until the UXO Technician can deem the location safe for collecting the sample.

Table B-2.1
Health Hazard Qualities of Hazardous Substances of Concern

Compound	PEL [a/] (ppm)	TLV [b/] (ppm)	IDLH [c/] (ppm)	Odor Threshold[d/] (ppm)	Ionization Potential[e/] (eV)	Physical Description/Health Effects/Symptoms
Mustard (H, HD, HT)	0.0004 mg/m^3 [j/]	NA [g/]	0.7 mg/m^3 [f/j/]	NA [g/]	NA [g/]	Blister agent. Yellow, oily liquid. Garlic odor. Reddening of skin or appearance of blisters may occur several hours after exposure.
Lewisite (L)	0.003 mg/m^3 [j/] (ceiling)[h/]	NA [g/]	NA [g/]	NA [g/]	NA [g/]	Blister agent. Dark oily liquid with geranium-like odor. Immediate pain on contact. Affects eyes, lungs, and blisters skin. Acts as a systemic poison, causing pulmonary edema, diarrhea, restlessness, weakness, subnormal temperature, and low blood pressure. Experimental teratogen.
Chloropicrin (PS)	0.1 [i/]	0.1	2	1.1	NA [g/]	Colorless to faint-yellow, oily liquid with an intensely irritating odor. High level exposures followed by burning of the nose and throat, coughing, shortness of breath, dizziness, nausea or vomiting, headache, and extreme eye irritation. Skin contact results in immediate burning or stinging pain followed by redness. Symptoms of exposure include severe irritation of the eyes, skin and respiratory passages; lacrimation, nausea, vomiting, colic, diarrhea, bronchitis and pulmonary edema. It may also cause vertigo, fatigue and cough.
Thiodiglycol (TDG)	NA [g/]	NA [g/]	NA [g/]	NA [g/]	NA [g/]	Mustard breakdown product. Colorless to pale yellow liquid. Odor similar to mustard. Eye, lung, and skin irritation.
2-chlorovinyl arsenious acid (CVAA)	NA [g/]	NA [g/]	NA [g/]	NA [g/]	NA [g/]	Agent breakdown product. Dilute acid.
2-chlorovinyl arsenious oxide (CVAO)	NA [g/]	NA [g/]	NA [g/]	NA [g/]	NA [g/]	Agent breakdown product. White powder, no discernable odor.
1,4-Oxathiane	NA [g/]	NA [g/]	NA [g/]	NA [g/]	NA [g/]	Agent breakdown product. Colorless liquid. Odor similar to mustard.
1,4-Dithiane	NA [g/]	NA [g/]	NA [g/]	NA [g/]	NA [g/]	Agent breakdown product. Odor similar to mustard.
Chloroform	50 [i/] (ceiling)[h/]	10 [b/]	500	85 to 307	11.42	Clear, colorless liquid with a pleasant sweet odor. Central nervous system depressant and carcinogen. Irritation of eyes, skin and respiratory tract. Central nervous system effects include headache, drowsiness, dizziness. Ingestion causes severe burning in mouth and throat, pain in the chest and vomiting. Individuals with pre-existing skin disorders, eye problems or impaired liver, kidney or respiratory function may be more susceptible to adverse effects.
Phosgene (CG)	0.1 [m/] 0.2 (ceiling)	0.1 [b/]	2	2	11.55	Colorless gas (>47o F) or fuming liquid (<47oF) with odor like musty hay. Component of CAIS kits. Avoid contact with skin, eyes, and respiratory system. Irritates eyes and causes vomiting, dry burning in throat, dizziness, cough, foamy sputum, difficulty breathing, chest pain and frostbite (liquid).

a/ PEL = Permissible Exposure Limit. OSHA-enforced average air concentration to which a worker may be exposed for an 8-hour workday without harm. Expressed as parts per million (ppm) unless noted otherwise. Some states (such as California) may have more restrictive PELs. Check state regulations.
b/ TLV = Threshold Limit Value - Time-Weighted Average. Average air concentration (same definition as PEL, above) recommended by the American Conference of Governmental Industrial Hygienists (ACGIH), 2006 *Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices*.
c/ IDLH = Immediately Dangerous to Life or Health. Air concentration at which an unprotected worker can escape without debilitating injury or health effects. Expressed as ppm unless noted otherwise. IDLH values are published in the *NIOSH Pocket Guide to Chemical Hazards* , September 2005.
d/ Values published in *Fundamentals of Industrial Hygiene* , National Safety Council, Appendix C, 1979.
e/ Ionization Potential, measured in electron volts (eV), used to determine if field air monitoring equipment can detect substance. Values are published in the *NIOSH Pocket Guide to Chemical Hazards* , September 2005.
f/ mg/m^3 = milligrams per cubic meter.
g/ NA = Not available.
h/ (ceiling) = Ceiling concentration which should not be exceeded at any time.
i/ OSHA PELs used. Values are published in the *NIOSH Pocket Guide to Chemical Hazards* , September 2005.
j/ AEL value

2.5.2 Severe Weather

2.5.2.1 Hazard Identification

During the course of field operations, severe weather may be encountered, including thunderstorms, tornados, rainstorms, and other unsafe weather conditions (i.e., high winds). Criteria indicating that severe weather conditions may exist include:

1. High winds (greater than 40 miles per hour – depending on the tree cover and other site specific conditions),
2. Tornado watch or warning in place for an area including the site,
3. Visible lightning,
4. Extreme temperatures (e.g., greater than 100 degrees or less than 0 degrees F), or
5. Heavy rainfall or ice storms that makes footing treacherous and visibility difficult.
6. Muddy or soft ground restricts the movement of rescue teams and emergency vehicles.

2.5.2.2 Hazard Mitigation and Prevention

2.5.2.2.1 The SSHO is solely responsible for deciding if field activities should cease due to severe weather. The SSHO will monitor the weather conditions during field activities using a weather radio. However, USAESCH personnel will be consulted (if time allows) prior to the cessation of operations, as the "Personnel and Work Standards for Ordnance Response" prepared by USACE gives the USACE Safety Specialist the authority and responsibility for stopping work activities during adverse weather conditions.

2.5.2.2.2 In the event that work is suspended, the SSHO will notify personnel who have radios or cellular telephones. These individuals will be responsible for relaying the work suspension to other personnel in their areas. All personnel will render the work place temporarily closed and move to designated assembly areas for further instruction.

2.5.2.2.3 Once the severe weather hazard has passed, the SSHO will notify personnel that work may resume. The SSHO will monitor weather forecasts and reports of current weather conditions both before and during field activities to determine if severe weather is forecast or is imminent. When medical support is onsite, the medics will monitor the emergency radio for local severe weather conditions.

2.5.2.2.4 Inclement weather may also create conditions that restrict access due to muddy or soft ground condition. The CWM SI SOP document provides a procedure for determining when an unsafe condition exists.

2.5.3 Lightning

2.5.3.1 Hazard Identification

Lightning's distance from you can be estimated noting the time from its flash to the bang of associated thunder. For each five-second count from flash to bang (F-B), lightning is one mile away. Thus, a F-B of ten = 2 miles; fifteen = 3 miles. Under some weather conditions, thunder will only be heard when the lightning is 3 to 4 miles away.

2.5.3.2 Hazard Mitigation and Prevention

2.5.3.2.1 If a lightning storm is expected or observed, all outdoor site activities must cease. Personnel should seek shelter indoors. A safe shelter may consist of:

- Fully enclosed metal vehicles with windows up,
- Enclosed buildings, or
- Low ground.

2.5.3.2.2 Unsafe shelter areas include all nearby outdoor metallic objects such as flag poles, fences, high mast light poles, gates, etc. Avoid trees, water, open fields, and avoid using the telephone.

2.5.3.2.3 People who have been struck by lightning do not carry an electrical charge and are safe to handle. Apply CPR immediately if you are qualified to do so. Get emergency help promptly.

2.5.4 Hazardous Noise

2.5.4.1 Hazard Identification

Planned activities will involve the use of heavy equipment, such as generators. The unprotected exposure of site workers to this noise during activities can result in noise-induced hearing loss.

2.5.4.2 Hazard Mitigation and Prevention

2.5.4.2.1 Personnel working on this project will participate in a Hearing Conservation Program. The CWM SI SOP document contains information on the Hearing Conservation Program. The PSHO or SSHO will verify these requirements have been met for each site worker. The SSHO will ensure that ear protection such as disposable earplugs, are made available to, and used by, all personnel 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. Double protection is required anytime noise levels exceed 100 dbA. Hazardous Noise Placards will be posted as required along the boundary of high noise areas.

2.5.4.2.2 Noise monitoring will be accomplished by use of a noise meter to measure both background and operational noise. Noise measurements will be used to implement hazard mitigation measures (hearing protection and placards) discuss above.

2.5.5 Heat Stress

A discussion of heat stress symptoms and heat stress mitigation and prevention are provided in Chapter 9 of this SSHP.

2.5.6 Cold Stress

A discussion of cold stress symptoms and cold stress mitigation and prevention are provided in Chapter 9 of this SSHP.

2.6 IONIZING RADIATION

2.6.1 Hazard Identification

No hazards due to ionizing radiation are anticipated for the Schilling AFB site.

2.7 BIOLOGICAL HAZARDS

2.7.1 Snakes

2.7.1.1 Hazard Identification

Venomous snakes make up only a small percentage of the snakes in Kansas. If found, they would include copperhead *Agkistrodon contortrix*, cottonmouth *Agkistrodon piscivorus*, timber rattlesnake *Crotalus horridus*, western diamondback rattlesnake *Crotalus atrox*, Massasauga *Sistrurus catenatus*, and Prairie Rattlesnake *Crotalus viridis* (http://en.wikipedia.org/wiki/List_of_snakes_of_Kansas). It should be noted however, never pick up or agitate a venomous snake. These snakes are dangerous**!** Illustrations of these snakes are shown in on Figure B-2.1 and descriptions provided below:

1. Cottonmouth (Figure B-2.1a): Snakes of this species range from three to four feet in length, and will always be seen near water. It is common to see these snakes sunbathing along a shoreline. When approached, this snake will hold its ground revealing a wide, white-lined mouth. Coloration is similar to the copperhead, ranging from golden brown to tan (sometimes not as reddish), and having wide black bands.
2. Copperhead (Figure B-2.1b): These snakes are commonly found near water sources in wooded areas. Copperheads are generally less than four feet in length and are not particularly aggressive. Coloration ranges from golden brown to tan. These snakes have a banded pattern.
3. Timber Rattlesnake (Figure B-2.1c): These are mid-sized (3-5 feet) snakes with grey, yellow, grayish, or yellowish-brown coloration. Patterns include 15-34 V-shaped black bands over the length of the body along with a reddish stripe down the dorsal length. The tail is normally jet black in color. They can be found in hardwood, mixed-pine hardwood, bottomland hardwood forests or brushy fields and hillsides. Some have been observed in trees searching for prey.
4. Western Diamondback Rattlesnake (Figure B-2.1d): Dusty looking gray-brown ground color, but it may also be pinkish brown, brick red, yellowish,

pinkish or chalky white. This ground color is overlaid dorsally with a series of 24-25 dorsal body blotches that are dark gray-brown to brown in color. The tail has 2-8 (usually 4-6) black bands separated by interspaces that are ash white or pale gray; this led to the nickname of "coon tail." Adults commonly grow 3.9 feet in length. Found in areas ranging from flat coastal plains to steep rocky canyons and hillsides. They are one of the more aggressive rattlesnake species found in North America because they rarely back away from confrontation. When threatened they usually coil and rattle to warn aggressors.

5. Massasauga (Figure B-2.1e): Adults are not large, ranging from 45 to 75 cm (18 to 30 inches) in length. Its color pattern consists of a grey or tan groundcolor with a row of large rounded brown/black blotches or spots down the centre of the back and three smaller rows of alternating spots down each side. It occurs in various habitats ranging from swamps and marshes to grasslands, usually below 1500 m altitude.

6. Prairie Rattlesnake (Figure B-2.1f): Generally, western rattlesnakes are usually lightly colored in hues of brown. Patches of dark brown are often distributed in a dorsal pattern. A color band may be seen at the back of the eye. The western rattlesnake group carries the distinctive triangular-shaped head and pit sensory organs on either side of the head. They seem to prefer dry areas with moderate vegetation coverage. Western rattlesnakes are typically active diurnally in cooler weather and nocturnally during hot weather.

2.7.1.2 Hazard Mitigation and Prevention

2.7.1.2.1 Avoidance of snakes is the best practice in the prevention of snakebites. The following suggestions will help in this process:

1. Learn to identify poisonous snakes – this will be reviewed during site-specific safety training. Regardless of type, all snakes should be avoided.
2. Wear long pants and work boots as protection.
3. Watch where you sit and where you place your hands and feet.
4. Avoid rock piles, stacks of old boards, and brush in wooded areas. If movement is necessary, use a remote means to initially relocate the material. Prior to entering a heavily wooded or brushy area, look and listen carefully.
5. Juvenile snakes may be as harmful, or in most cases, more harmful than the adults. Do not assume that a smaller snake is less dangerous.
6. Reflex action can cause an apparently “dead” snake to bite. If it is absolutely necessary to move an immobilized or “dead” snake, do not handle “dead” snakes with your hands; use a stick.
7. Do not attempt to capture or kill ANY snakes. Many snakes are beneficial to the environment. Also, according to the Centers for Disease Control and

Prevention (CDC), most snakebites are the direct result of handling or harassing snakes, which bite as a defensive measure.

2.7.1.2.2 A snake bite is usually characterized by extreme pain and swelling at the site of the bite; the presence of one or more puncture wounds created by the fangs; and a general skin discoloration. The manifestations of the bite include general weakness, rapid pulse, nausea and vomiting, shortness of breath, dimness of vision, tingling or numbness of the tongue, mouth or scalp, and shock.

2.7.1.2.3 Physical reactions are aggravated by acute fear, anxiety, the amount of venom injected and the speed of absorption of venom into the victim's circulation, the size of the victim, protection provided by clothing (including shoes and gloves), quick anti-venom therapy, and location of the bite.

Figure B-2.1
Snake Illustrations

Fig. B-2.1a: Cottonmouth

Fig. B-2.1b: Copperhead

Fig. B-2.1c: TimberRattlesake

Fig. B-2.1d: Western Diamondhead Rattlesnake

Fig. B-2.1e: Massasauga

Fig. B-2.f: Prairie Rattlesnake

2.7.1.2.4 First Aid – The rules to follow if someone is bitten by a snake are:

1. DO NOT cut "Xs" over the bite area, as this will intensify the effect of the venom.
2. DO NOT apply suction to the wound since this has a minimal effect in removing venom.

3. DO NOT apply a tourniquet since this will concentrate the venom and increase the amount of tissue damage in the immediate area.
4. If possible, try to get a good look at the snake so it can be identified for proper selection of anti-venom, but do not try to capture or kill it.
5. DO NOT allow the victim to run for help since running increases the heart rate and will increase the spread of the venom throughout the body.
6. Calm, reassure, and keep the victim calm and immobile. Do not delay evacuation.
7. Have the victim hold the affected extremity lower than the body while waiting for medical assistance.
8. Transport the victim to medical attention immediately.

2.7.1.2.5 An incision through the fang marks is not advisable; this procedure is too hazardous to underlying structures and at best removes only 20% of the venom. Do not use cold compresses, ice, dry ice, chemical ice packs, spray refrigerants, or other methods of cold therapy. Several other factors must be considered by the caregiver:

1. **Shock** - The victim should remain in a comfortable prone position and body temperature should be stabilized.
2. **Breathing and heartbeat** - If breathing stops, mouth-to-mouth resuscitation should be administered. If breathing stops and there is no pulse, cardiopulmonary resuscitation (CPR) should be performed by a trained individual.
3. **Cleaning the bitten area** - The bitten area may be washed with soap and water and blotted dry with sterile gauze. Dressings and bandages may be applied, but only for a short period.
4. **Medicine to relieve the pain** - The victim should not be given alcohol, sedatives, or any medicine containing aspirin. Some painkillers may be given after consulting with a doctor or medical personnel for specific medications that may be used.
5. **Snakebite Kits** - Kits should be kept accessible for all outings in primitive areas or areas known or suspected to be snake infested.

2.7.1.2.6 Identification Features – Non-poisonous snakes are often erroneously identified as poisonous. The features identified in Table B-2.2 will assist in properly identifying a snake as poisonous or non-poisonous.

Table B-2.2
Snake Identification Features

Feature	Poisonous	Non-Poisonous
Eye Pupils	Elliptical, or cat-like	Round
Sensing Pits	Pit between the eyelids and nostrils	No pit between the eyelids and nostrils
Teeth	Two enlarged teeth (fangs) in front of the upper jaw	All teeth are approximately the same size
Scales	Form a single row on the underside and below the tail	Arranged in a double row on the underside of the tail
Head	Head much wider than the neck	Head slightly wider than the neck
Tail	Single anal plate	Divided anal plate

2.7.2 Insect and Arachnid Bites and Stings

2.7.2.1 Overview

2.7.2.1.1 Poisonous insects and insect-like creatures that may be encountered at the site include the following:

1. Spiders and Scorpions;
2. Bees (honeybees, bumble bees, wasps, and hornets);
3. Mosquitoes;
4. Chiggers; and
5. Ticks.

2.7.2.1.2 If insect bites become red or inflamed, or if symptoms such as nausea, dizziness, shortness of breath, etc., appear, medical care will be sought. Immediate care is needed if a person is allergic to insect bites/stings. Personnel with insect allergies should inform the PM, FTL, and SSHO. If an allergic person receives a spider bite or insect bite/sting, seek immediate medical attention, keep the victim calm, and check vital signs frequently. Rescue breathing should be given if necessary to supply oxygen to the victim.

2.7.2.2 Spiders and Scorpions

2.7.2.2.1 Hazard Identification

Three poisonous spiders and one species of scorpion are likely to be encountered at the former Schilling AFB. They include the Brown Recluse, Black Widow, and Yellow house spider, along with the *Centruroids vittatus* scorpion shown on Figure B-2.2. The Brown Recluse is up to one inch long with a violin or “fiddle” shaped mark on the top of the thorax. The Black Widow is a smaller, bulbous black spider with a red hourglass-shaped mark on the underside. The Yellow House spider is approximately ½ inch long, with a pale-yellow to whitish or greenish body and brown legs. *Centruroids vittatus* is seldom is larger than 2 ½ inches, and is pale yellow with brown markings.

2.7.2.2.2 Hazard Mitigation and Prevention

2.7.2.2.2.1 Workers involved in brush clearing, surveying, and other similar activities should avoid spiders and webs.

2.7.2.2.2.2 Persons who are believed to have been bitten or stung should be immediately transported to a hospital. The spider or scorpion should be collected (if possible) for confirmation of the species. Reactions to a Brown Recluse spider bite include mild to severe pain within two to eight hours, and a star shaped area around the bite within three to four days. Significant tissue death and loss accompanies a Brown Recluse spider bite. Reactions to a Black Widow spider include intense pain at the site of the bite after approximately 15 to 60 minutes, followed by profuse sweating; rigid abdominal muscles; muscle spasms; breathing difficulty; slurred speech; poor coordination; dilated pupils, and generalized swelling of face and extremities. A Yellow House spider leaves a wound similar to a Brown Recluse spider, but normally not as severe. The venom from the scorpions found in Kansas is normally not very toxic to humans, but may resemble a sting characteristic of a bee or wasp sting. Sensitivity to the venom depends mostly on the victim's age or health.

2.7.2.3 Ticks

2.7.2.3.1 Hazard Identification

2.7.2.3.1.1 The CDC has noted the increase of Lyme Disease and Rocky Mountain Spotted Fever (RMSF) which are caused by bites from infected ticks that live in and near wooded areas, tall grass, and brush. Ticks are small, ranging from the size of a comma up to about one quarter inch. They are sometimes difficult to see. When embedded in the skin, they may look like a freckle. The tick season extends from spring through summer.

2.7.2.3.1.2 Lyme Disease has occurred in 43 states, with the heaviest concentrations in the Northeast (Connecticut, Massachusetts, New Jersey, New York, and Pennsylvania), the upper Midwest (Minnesota and Wisconsin), and along the northern California coast. It is caused by deer ticks and the lone star ticks. Female deer ticks are about one quarter inch in size, and are black and brick red in color. Male deer ticks are smaller, and completely black. Lone star ticks are larger and chestnut brown in color.

2.7.2.3.1.3 RMSF has occurred in 36 states, with the heaviest concentrations in Oklahoma, North Carolina, South Carolina, and Virginia. It is caused by Rocky Mountain wood ticks and dog ticks. Both are black in color.

2.7.2.3.1.4 The first symptoms of either disease are flu-like chills, fever, headache, dizziness, fatigue, stiff neck, and bone pain. If immediately treated by a physician, most individuals recover fully in a short period. If not treated, symptoms that are more serious can occur. If you believe a tick has bitten you, or if any of the signs and symptoms noted above appears, contact the SSHO.

Figure B-2.2
Arachnid Illustrations

Scorpion

Brown Recluse

Yellow House Spider

Black Widow

2.7.2.3.2 Hazard Mitigation/Prevention

Standard field gear (work boots, socks and light-colored coveralls) provide good protection against tick bites, particularly if the joints are taped. However, even when wearing field gear, the following precautions shall be taken when working in areas that might be infested with ticks:

1. When in the field, check yourself often for ticks, particularly on your lower legs and areas covered with hair.
2. Apply DEET (vapor-active repellent) to any exposed skin surface (except eyes and lips). Carefully read and follow directions on the container and wash treated skin when tick exposure has ended.
3. Apply the permethrin repellent spray to field clothing, particularly pant legs and socks, and avoid direct application to skin if feasible.
4. When walking in wooded areas, wear a hat, and avoid contact with bushes, tall grass, or brush as much as possible.
5. If you find a tick, remove it by pulling on it gently with tweezers. Do not squeeze the tick's body. Grasp it where the mouthparts enter the skin and tug gently, but firmly, until it releases its hold on the skin. If possible, use a device like the Pro-tick Remedy to remove any ticks. This device removes ticks without discharge of tick fluids into your skin. While, most medical sources acknowledge it takes several hours for a tick to infect you with Lyme disease, this maybe facilitated by squeezing the tick’s fluids into the bite. Consult your doctor immediately; we do not encourage people to wait for symptoms of Lyme disease to appear as early warning signs are not always present.
6. DO NOT use matches, a lit cigarette, nail polish or any other type of chemical to "coax" the tick out.
7. Be sure to remove all parts of the tick's body, and disinfect the area with alcohol or a similar antiseptic after removal.
8. For several days to several weeks after removal of the tick, look for the signs of the onset of Lyme disease, such as a rash that looks like a bulls-eye or an expanding red circle surrounding a light area, frequently seen with a small welt in the center.
9. Also look for the signs of the onset of RMSF, such as an inflammation which is visible in the form of a rash comprising many red spots under the skin, which appears 3 to 10 days after the tick bite.

2.7.2.4 Chiggers

2.7.2.4.1 Hazard Identification

Chiggers, or harvest mites, are red, eight-legged arachnids known to inhabit Kansas. They are grouped with spiders, ticks, and scorpions and they measure approximately 1/16 of an inch in length. Chiggers do not burrow into the skin. They generally attach to

those areas of the body where clothing fits tightly, such as at the sock line and waistline, and they feed at the base of a hair follicle or in a pore. Chiggers usually dislodge within several hours of attachment. The bites commonly cause itching in about 3 to 6 hours and dermatitis develops in about 10 to 16 hours. Some people experience allergic reactions to the bites and develop blister-like lesions. They are commonly encountered at the woodland borders, along the periphery of swamps, and in shrub thickets and un-mowed areas of lawn. Areas that contain thick layers of pine straw, leaf litter or thatch are suitable habitats for chiggers and their prey.

2.7.2.4.2 Hazard Mitigation and Prevention

For personal protection, apply insect repellent to clothing and exposed skin.

2.7.2.5 Mosquitoes

2.7.2.5.1 Hazard Identification

2.7.2.5.1.1 West Nile virus is a virus that is spread by infected mosquitoes. The virus usually infects birds, but it can be spread to humans by mosquitoes that feed on infected birds and then bite humans. The virus cannot be spread by person-to-person contact.

2.7.2.5.1.2 Symptoms usually occur 3 to 15 days after the bite of an infected mosquito. Most people who are infected with West Nile virus will have no symptoms or may have a mild flu-like illness with a fever, headache, and body aches before they recover. In some individuals, particularly the elderly, the virus can cause a serious illness called encephalitis, which is an inflammation of the brain. Symptoms of encephalitis may include high fever, severe headache, nausea, stiff neck, confusion, muscle weakness, paralysis, disorientation, convulsions, coma, and rarely, death. Less than 1% of humans infected with West Nile virus will develop serious illness.

2.7.2.5.2 Hazard Mitigation and Prevention

The best way to prevent infections with West Nile virus and other mosquito-borne diseases is to avoid getting mosquito bites. Other viruses that are transmitted by mosquitoes, including those that cause St. Louis Encephalitis and Eastern Equine Encephalitis, already exist in the United States, and the following precautions should be taken to avoid mosquito bites:

- Cover up by wearing shoes, socks, long-sleeved shirts, and long pants.
- Consider using a mosquito repellant that contains DEET on exposed skin. Carefully read and follow directions on the container and wash treated skin when mosquito exposure has ended.
- All mosquitoes need standing water for the first stages of development. Eliminate stagnant water around the work areas, where mosquitoes can lay eggs, by disposing of old tin cans, jars, tires, and any other container that can hold water. Stack tubs, buckets, barrels, etc. upside down so that water cannot accumulate in them.

2.7.2.6 Bees, Wasps, Hornets, and Other Insects

2.7.2.6.1 Hazard Identification

2.7.2.6.1.1 Honey Bees (Apis mellifera) are about one-half inch long and build their nests in protected spaces such as a hollow tree or a space in the wall of a building. Swarms are not usually a problem unless they land in an inconvenient place or are molested, and are best left alone. Bumble Bees (Bombus spp.) are large, heavy-bodied social insects that usually nest in the ground. A bumble bee has a yellow, hairy abdomen and large pollen baskets on its hind legs. They can become a problem if the nest is established close to a building foundation or when they occasionally nest in insulation material. Most species will defend their colonies aggressively. Carpenter bees (Xylocopa virginica)are large (three-fourths to 1 inch long), heavy-bodied insects. Their blue-black metallic bodies have some yellow or orange hair. They resemble bumble bees, but can be distinguished by their shiny, black, hairless abdomens.

2.7.2.6.1.2 The Baldfaced Hornet (Dolichovespula maculata) hornet is black with white markings. Adults are up to three-fourths of an inch long. These wasps build nests of paperlike material composed of salivary secretions produced by the females. The large gray nest is shaped somewhat like a football and is located in trees and shrubs. Yellow Jackets (Vespula spp.) are approximately 3/4” in length with definite black and yellowish bands on the abdomen. Yellow jackets usually nest in the ground or near foundations and many times encountered while trimming shrubs, mowing or weeding. The nest is a “paper nest,” located several inches to a foot underground. Polistes Wasps (Polistes spp.) are approximately 3/4” in length and are long-legged and slender with a spindle-shaped abdomen. In color they are reddish brown to brown. They often are seen flying up and down the outside of walls on sunny days in the spring and fall. Polistes wasps build “paper nests” that look like a section of honeycomb with only one layer of cells facing downward. These wasps use attics, barns and garages as nesting locations and often the nests are located under the eaves or protective overhang of a building. Mud Dauber Wasps (Sphecidae) are one-inch in length. In spring, these wasps emerge from their mud or clay nest. They are docile and seldom sting unless teased or injured. Cicada Killers wasps (Sphecius speciosus) are one and a half inches in length. In early summer, adult cicada killers come out of their nests in the ground where they have overwintered as larvae.

2.7.2.6.2 Hazard Mitigation and Prevention

2.7.2.6.2.1 Only female bees and wasps sting. Wasps have stingers without barbs, and they can sting repeatedly. The honey bee has a barbed stinger and can sting only once, leaving the stinger at the site. When stung by a honey bee, a person should carefully remove the stinger by using a scraping action from the side. Any squeezing will force more venom under the skin. Bee and wasp venom produces lethal or narcotic effects in the insects intended as food. Stinging is also a defense mechanism. While truly “unprovoked” stinging of large animals is considered quite rare, it takes very little provocation to incite some social bees and wasps to attack intruders near their nests. People who know they are sensitive to stings should take the necessary precautions. Insect sting kits are available with a physician’s prescription.

2.7.2.6.2.2 Site personnel will comply with the following work practices:

- Personnel with a known hypersensitivity to bee, wasp, or hornet stings will inform the SSHO of this condition prior to performing site activities.
- Personnel with a known hypersensitivity condition will keep emergency medication available.
- All personnel will remain vigilant for the presence of these stinging insects. Discovered nests will be flagged and their location reported to other site personnel.
- If stung, immediately inform the SSHO to receive treatment.

2.7.3 Poisonous Plants

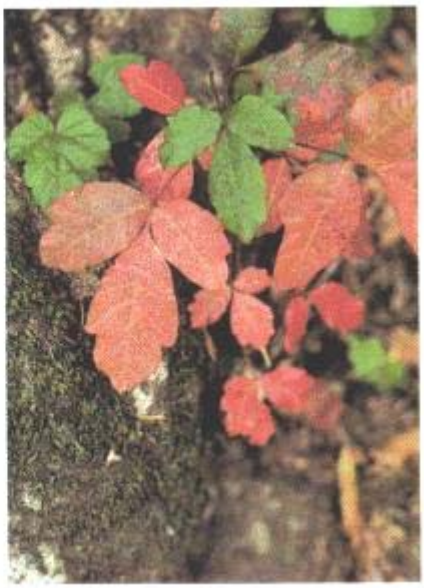
2.7.3.1 Hazard Identification

2.7.3.1.1 The majority of skin reactions following contact with offending plants are allergic in nature and are characterized by:

- Redness,
- Itching, and
- Rash.

2.7.3.1.2 In Kansas, some of the most common and severe allergic reactions result from contact with poison ivy and poison oak. Contact with the poisonous sap of these plants, or even exposure to pollen, droplets or various parts of the plants, produces a severe rash characterized by redness, blisters, swelling, and intense burning and itching. The victim also may develop a high fever and may be very ill. Ordinarily, the rash begins within a few hours after exposure, but it may be delayed for 24 to 48 hours.

Figure B-2.2 Poisonous Plants



Poison Ivy **Poison Oak**

"Leaves of Three, Let it be"

2.7.3.1.3 The most distinctive features of poison ivy and poison oak are their leaves, which are composed of three leaflets each. In certain seasons, both plants also have greenish-white flowers and berries that grow in clusters. Poison sumac is a tall shrub or small tree with 6 to12 leaflets arranged in pairs with a single leaflet at the end. This plant grows in wooded, swampy areas.

2.7.3.2 Hazard Mitigation and Prevention

Avoidance of plant/sap contact is the most effective means of preventing exposure. If one is working in a wooded or other environment where poison plants have been identified, long sleeve shirts, gloves, and long pants should be worn. Barrier creams are also available. A person experiencing symptoms of exposure should remove contaminated clothing; wash all exposed areas thoroughly with soap and water. Apply calamine or other poison ivy/oak lotion if the rash is mild. Seek medical advice if a severe reaction occurs, or if there is a known history of previous sensitivity. Thorough washing of skin and clothing after site work or after potential exposure can reduce the severity of irritation.

2.7.4 Bloodborne Pathogens

2.7.4.1 Hazard Identification

Bloodborne pathogens enter the human body and blood circulation system through punctures, cuts, or abrasions of the skin or mucous membranes. They are not usually transmitted through ingestion (swallowing), through the lungs (breathing), or by contact with whole, healthy skin. However, under the principle of universal precautions (see

below), all blood should be considered infectious, and all skin and mucous membranes should be considered to have possible points of entry for pathogens.

2.7.4.2 Hazard Mitigation and Prevention

Potential bloodborne pathogen exposures include those instances listed below and personnel should where the proper PPE (including gloves and masks when appropriate) to prevent exposure to bloodborne pathogens. Potential exposures include:

- Contact with contaminated medical equipment or medical waste or sharps,
- Medical emergency response operations such as administering first aid or CPR, and
- Contact with human wastes such as domestic sewage.

2.7.5 Rats, Mice, and Bats

2.7.5.1 Hazard Identification

Rats, mice, and bats may be found at the site. These animals may carry rabies and they should be avoided. In addition, Hanta Virus is also a concern when encountering these animals. Most cases have occurred in the southwestern U.S., however sporadic cases have occurred in most other parts of the U.S. Hanta Virus is a disease spread primarily from infected rodent droppings. Hanta Virus results from intimate contact with rodents, such as may occur in agricultural areas with dense human and rodent populations or during soil excavation. Hanta virus is not transferred from person to person. The overwhelming evidence is that spread is from rodent to humans through contact with infected rodent secretions or airborne transmission by infected dust particles.

2.7.5.2 Hazard Mitigation and Prevention

2.7.5.2.1 If rodent nests are discovered, field team members should be apprised of their locations and should avoid working adjacent to the nests. If work must be performed at that location, a 5% bleach solution should be sprayed on the nest and adjacent areas to kill the virus. If work must be performed at a location where rodent infestation is evident, personal protective equipment should be worn. The PPE ensemble will include:

- Full face APR with N-100 cartridges,
- Tyvek coveralls,
- Boot covers, and
- PVC or latex gloves.

2.7.5.2.2 Preventative measures should focus on cleaning all cuts and scratches with soap and water, followed by rinsing with hydrogen peroxide. Put liquid skin on the affected areas. The best preventative measure is to avoid all rodent nests during field work.

CHAPTER 3
STAFF ORGANIZATION, QUALIFICATIONS, AND RESPONSIBILITIES

Chapter 2 of the SS-WP provides details on the project team, and responsibilities of the different organizations. Figure 2.1 of the SS-WP shows the organizational structure.

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CHAPTER 4
TRAINING

Training requirements are discussed in Section 5 of the Accident Prevention Plan (APP) in Appendix B of the PWP.

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CHAPTER 5
PERSONAL PROTECTIVE EQUIPMENT

5.1 INTRODUCTION

PPE Ensemble selection, requirements, and training for use of PPE is specified in Chapter 10 of the APP in Appendix B of the PWP for the CWM SI Program. Table B-5-1 lists PPE levels for specific work activities. Descriptions of the specific requirements for Level D, Modified Level D, Level C, and Level B PPE have been excerpted from the APP. Note that all of the PPE listed in Table B-5-1 for specific work activities are subject to upgrade to higher level of PPE based on the criteria and upgrades as shown in Table B-5-2.

Table B-5-1
Initial PPE Required for Project Activities

Activity	PPE Ensemble Required*			
	Level D PPE	Modified Level D PPE	Level C PPE	Level B PPE
Brush Clearing and Debris Removal	•			
Surveying	•			
Hand Digging and Soil Sampling		•		
Personnel Decontamination Station – No Suspected CAIS		•		
Personnel Decontamination Station Suspect CAIS			•	
Emergency Rescue – No Suspected CAIS		•		
Emergency Rescue – Suspect CAIS			•	
Air Monitoring		•		
Headspacing			•	
CAIS Assessment and Packaging			•	
On site Transport of Packaged CAIS Item(s)		•		
DAAMS Placement/ Retrieval		•		
Project Mobilization / Demobilization	•			

*see upgrade requirements in Table B-5.2

Table B-5-2
PPE Ensemble Selection Criteria

Level of Protection	Criteria for Use
Level D	Initial level of protection for all activities outside the EZ.
Modified Level D	Use Modified Level D for initial intrusive work and non-intrusive work inside the EZ (including CA/ABP sampling) except: • If upgrade criteria for Level C or B are encountered.
Level C	PPE level for all intrusive operations and other work within the EZ if: • VOCs detected with a PID greater than 10 ppm and less than 50 ppm, • Suspected CAIS has been encountered, • Air monitoring detects any potential CA; and • Detected compounds are below 1 x STEL for H/HD/ HT and L; and • Below 1 x PEL for CG or PS; and • No CA splash hazard exists.
Level B	Upgrade to Level B for personnel working within the EZ if: • VOCs detected with a PID greater than 50 ppm; • CG, PS are detected or indicated above criteria for Level C; or • Air monitoring indicates detection equal to or above 1 x STEL for H/HD/HT and L and • No chemical agent splash hazard exists.

Note: Refer to Table B-8.3 for Specific STEL, PEL, and TLV concentrations.

5.2 SPECIAL PPE CONSIDERATIONS

5.2.1 The following special considerations shall be observed in the selection of PPE:

- Hard hats will be required when working around heavy equipment or when an overhead hazard exists.
- Steel toe and shank boots are not required during anomaly location and reacquisition unless a serious toe hazard exists, where upon a fiber safety toe will be used.
- Safety glasses/goggles shall be selected which provide site personnel with the best protection from not only physical hazards, such as flying objects, but that also provide adequate splash protection.
- Parsons shall continually evaluate site tasks to identify hazards and shall provide any PPE necessary to ensure the safety and health of site personnel, regardless of the activity they perform.

5.2.2 Tychem F Special Considerations:

- When used in any Level PPE, Tychem F chemical resistant suits with hood will not be reused if contamination is encountered or if CAIS-related chemicals are encountered in air. They will be disposed of while processing through the PDS.
- During sampling operations, if personnel encounter an object that could result in a tear or abrasion of the Tychem F material, the suit will be inspected by the worker's buddy. If there is a tear, or if the gray outer coating is abraded away, the worker will exit out and process through the PDS.

5.3 LEVEL D PPE

Level D PPE is the initial level of protection for non-intrusive activities (e.g., digital geophysical mapping). Level D PPE is not allowed in areas of the site where airborne hazards are known or expected to exist. Level D should also be worn only if the activity in which personnel are engaged does not have the potential for splash, immersion or any other contact with hazardous substances. Level D will be worn during the site activities as specified in Table B-5.1. Level D includes the following:

- Cotton coveralls or work clothing.
- Sturdy work boots or shoes, with steel toes when working around heavy equipment. Geophysical survey and reacquisition personnel will not use boots containing steel.
- Safety glasses with side shields or goggles when an eye hazard exists.
- Hard hat when working around heavy equipment or when an overhead hazard exists.
- Chaps for protection during brush clearing operations involving the use of hand held equipment (e.g., string trimmers).
- High visibility vest- When working adjacent to heavy equipment or roadways
- Leather or canvas work gloves when a scrape or cut hazard exists.
- Hearing protection, when working around heavy equipment, powered tools or noise hazards inherent to the site location.

5.4 MODIFIED LEVEL D PPE

For intrusive sampling activities (e.g., hand auguring) or other activities considered to have potential exposure to CAIS, the minimum level of protection that will be worn by personnel at the site is Modified Level D. Modified Level D will be used as the initial level for protection for sampling. Modified Level D will be worn during the site activities as specified in Table B-5.1, and includes the following:

- Cotton coveralls or other work clothes.

- Safety boots with rubber boot covers.
- Approved full face, air purifying respirator, civilian NIOSH-approved for CBRN agents or M40 mask – slung.
- Nitrile gloves for soil sampling, leather or canvas work gloves when a scrape or cut hazard exists.
- High visibility vest- When working adjacent to heavy equipment or roadways
- Safety glasses with side shields or goggles when an eye hazard exists.
- Hard hat (as required when adjacent to heavy equipment).
- Hearing protection (as required when near heavy equipment).
- Two-way radio: One per team.

NOTE: air-purifying respirators (APR) will be donned and worn to exit the work area when observations or air monitoring indicate the presence of CAIS-related chemicals (i.e., H, L, CG, PS and chloroform).

5.5 LEVEL C PPE

Level C affords protection from casual contact with contaminated soil and materials, and also protects against a potential for airborne exposure to hazardous substances. Level C will be worn during the site activities as specified in Table B-5.1, and includes the following:

- Approved full face, air purifying respirator, civilian NIOSH-approved for CBRN agents or M40 (or equivalent) mask;
- Tychem F coveralls with hood;
- Inner surgical gloves;
- Outer butyl-rubber gloves;
- Chemical-resistant butyl-rubber safety boots;
- Rubber boot covers;
- Hard hat (as required when adjacent to heavy equipment);
- Hearing protection (as required when near heavy equipment);
- Two-way radio: One per team; and
- Chemical Protective Undergarments (CPUs) (as required with potential exposure to mustard).

5.6 LEVEL B PPE

Level B PPE offers superior protection against the inhalation of airborne contaminants due to the use of supplied air or self-contained breathing apparatus (SCBA) respirators. However, the type of protective suit used with this level of protection is not airtight and skin exposure to hazardous vapors is possible. Therefore, this level of

protection is not acceptable for use where liquid or vapor contact with hazardous chemicals presents a serious safety or health threat via dermal contact. Level B can, however, be used under conditions where: 1) the chemical hazards of concern are not acutely skin toxic; 2) there is no potential for liquid contact, and vapor levels are being monitored when working with acutely skin toxic materials; and 3) it is needed to protect site workers from non-chemical warfare agent hazardous wastes. Level B will be worn during the site activities as specified in Table B-5.1, and will include the following:

- NIOSH CBRN-approved Interspiro Spirotek or Spiromatic SCBA;
- Tychem® F coveralls with hood;
- Inner surgical gloves;
- Outer butyl-rubber gloves;
- Chemical-resistant butyl-rubber safety boots;
- Chemical-resistant rubber boot covers;
- Hard hat (as required when working adjacent to heavy equipment);
- Hearing protection when near heavy equipment;
- Two-way radios - one per team; and
- CPUs (as required with potential exposure to mustard).

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CHAPTER 6
MEDICAL SURVIELLANCE

Personnel engaged in hazardous waste operations are required to be enrolled in a medical monitoring program by 29 CFR 1910.120(f). . A letter signed by a physician attesting to each worker's fitness for duty must be provided to the SSHO prior to beginning work. Copies of these letters will be filed onsite. Medical Surveillance, Control/Access to Employee Medical Records, and Emergency Care is described in the CWM SI SOP document. Additionally, consistent with 29 CFR 1920.1020, DAAMS work area monitoring results for the CWM SI will be forwarded to the appropriate authority (i.e., WorkCare and PSHO for Parsons personnel).

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CHAPTER 7
MEDICAL SUPPORT

7.1 For medical emergencies and emergency room needs, Salina Regional Health Center (400 S. Sante Fe Ave., Salina, KS 67401 785-452-7000) will be used. A map and directions to Salina Regional Health Center are presented Section 16.

7.2 Medical emergency response will be initiated by contacting the 911 Coordinator.

7.3 In the event of a chemical-related injury, the SSHO will notify emergency response personnel regarding the potential for contamination. In addition, the responding transport personnel must be aware of the exposure to ensure transport to the proper medical care. Medical evacuation of critical injuries needs to be arranged through the emergency response personnel.

7.4 For non-emergencies, Statcare Family Medical Clinic & Minor Emergency Center (1001 S. Ohio Street, Salina, KS 67401 785-827-6453) will be used. A map and directions are presented in Section 16.

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CHAPTER 8
EXPOSURE AIR MONITORING AND AIR SAMPLING PROGRAM

8.1 INTRODUCTION

8.1.1 This Chapter covers the requirements for air monitoring the workspace during intrusive sampling operations for releases of airborne hazards and includes organizational responsibilities, definitions, air monitoring requirements, and required actions. Detailed procedures for air monitoring are provided in the CBRNE Analytical and Remediation Activity (CARA) Air Monitoring Plan (Appendix D of the SS-WP).

8.1.2 Revised airborne exposure limits (AELs) for mustard agent have been adopted by the U.S. Army for chemical workers and the general population and are in effect as of July 1, 2005. The revised exposure limits for mustard, along with exposure limits for other airborne hazards, are discussed in more detail in the following paragraphs.

8.2. ORGANIZATIONAL RESPONSIBILITIES

8.2.1 CBRNE Analytical and Remediation (CARA)

The responsibilities of the U.S. Army Research, Development, and Engineering Command (RDECOM), CBRNE Analytical and Remediation (CARA) Environmental Monitoring Laboratory include:

- Conduct on-site analysis and confirmation for air samples and headspace samples collected from soil, scrap, PPE, and bulk item samples.
- Collect and retain all H, L, PS, CG and chloroform related air monitoring data. Resulting data analysis from daily air monitoring should be summarized and presented to the SSHO, Site Manager (SM), and the USAESCH On-Site Safety Representative.

8.2.2 Parsons

8.2.2.1 Parsons is responsible for overall coordination of the field operations. Key personnel related to the air monitoring are the SM, the SSHO, the Down Range Team Leader, and the PDS Supervisor.

8.2.2.2 Besides directing the overall operations, the SM assists the SSHO with reporting the results of the air monitoring with site workers and forwards all air monitoring records to the appropriate organizations. The purpose of forwarding air

monitoring records is to assist those organizations with maintaining exposure records for their workers.

8.2.2.3 The SSHO briefs the site workers on the results of air monitoring and is responsible for changes to PPE level. The SSHO is responsible for ensuring that health education materials used in worker training programs are readily accessible to all individuals with an exposure potential to H, L, PS, CG and chloroform. The SSHO must also verify that all of the required health-related training has been conducted and has been renewed annually (Section 8.9).

8.2.2.4 The Down Range Team Leader is responsible for coordinating the air monitoring of selected industrial chemicals and airborne particulates during excavation operations. This air monitoring will be conducted with approved industrial air monitors, PIDs, colorimetric tubes, and particulate air monitors. A more detailed discussion of the Down Range Team air monitoring responsibilities is included in Sections 8.6.6 and 8.6.7 of this Chapter.

8.3 DEFINITIONS

8.3.1 Airborne Exposure Limit (AEL)

AELs are the allowable concentrations in the air for workplace and general population exposures. AELs include general population limits (GPLs), immediately dangerous to life or health values (IDLHs), worker population limits (WPLs), short term exposure limits (STELs), permissible exposure limits (PELs), and threshold limit values (TLVs)

8.3.2 Excursion

An increase in the concentration of chemical compound or particulate present in an environment above a given concentration reference point, e.g., the concentration goes above the WPL's 8-hour time-weighted average (TWA) concentration.

8.3.3 General Population Limit (GPL)

The GPL is the maximum concentration to which the general population may be exposed 24 hours per day, 7 days per week, for a 70-year lifetime. The GPL applies to the entire general population including all ages and medical conditions. The GPL will not be monitored because no effective field monitoring technology is available.

8.3.4 Immediately Dangerous to Life or Health (IDLH)

An atmosphere that poses an immediate threat to life is one which causes irreversible adverse health effects and could impair an individual's ability to escape from a dangerous atmosphere, regardless of PPE use. For planning purposes, the respirator wearer shall be unaffected by the environment for up to 30 minutes without any respirator being worn. IDLH also includes atmospheres where oxygen content by volume is less than 19.5 percent.

8.3.5 Worker Population Limit (WPL)

The WPL is the maximum allowable 8-hr time-weighted average (TWA) concentration that an unmasked worker can be exposed to for an 8-hour workday and 40-hour week for 30 years without adverse effect.

8.3.6 Short Term Exposure Limit (STEL)

The STEL is the maximum concentration to which unprotected chemical workers may be exposed to for up to 15 minutes continuously.

8.3.7 Permissible Exposure Limit (PEL)

The Occupational Safety and Health Administration (OSHA) sets permissible exposure limits (PELs) to protect workers against the health effects of exposure to hazardous substances. PELs are regulatory limits on the amount or concentration of a substance in the air. OSHA PELs are based on an 8-hour TWA exposure and may be reported as a TWA exposure limit, a 15-minute STEL, or a ceiling (*NIOSH Pocket Guide to Chemical Hazards*, September 2005 and 29 CFR 1910.1000).

8.3.8 Threshold Limit Value ® (TLV)

TLVs are advisory exposure guidelines, not legal standards, established by the American Conference of Government Industrial Hygienists (ACGIH®). TLVs refer to airborne concentrations of chemical substances and represent conditions under which it is believed that nearly all workers may be repeatedly exposed, day after day, over a working lifetime without adverse health effects. The TLV may be a TWA exposure limit (TLV-TWA), a 15-minute STEL (TLV-STEL), or a ceiling (TLV-C) (*ACGIH 2009 Threshold Limit Values for Chemical Substances, Physical Agents, and Biological Exposure Indices*).

8.4 MONITORING REQUIREMENTS

The Implementation Guidance Policy requires that any workplace associated with, near, or surrounding activities involving H and L will be monitored. Air monitoring for both the WPL and the STEL are required when mustard agent is potentially present. References for the guidance policy follow.

1. *Memorandum, Implementation Guidance Policy for New Airborne Exposures Limits for GB, GA, GD, GF, VX, H, HD, and HT*, Raymond J. Fatz, Deputy Assistant Secretary of the Army (Environment, Safety and Occupational Health) OASA (I&E), dated June 18, 2004.

2. *Implementation Guidance Policy for Revised Airborne Exposures Limits for GB, GA, GD, GF, VX, H, HD, and HT*, Department of the Army, Office of the Assistant Secretary of the Army Installations and Environment, 18 June 2004.

3. *Interim Recommendations for Airborne Exposure Limits for Chemical Warfare Agents H and HD (Sulfur Mustard)*, Department of Human Services,

Centers for Disease Control and Prevention, *Federal Register*, Vol. 69, No. 85, Monday, May 3, 2004, p. 24164-21168.

8.4.1 WPL Monitoring

WPL monitoring applies only to mustard agent during this investigation and will be performed for identified areas where workers may have an exposure potential to mustard agent. The monitoring may be either historical, real-time, or near-real-time based on the CARA Air Monitoring Plan for the site (Appendix D). Records will be maintained of excursions above the WPL including location, time, date, and the names of potentially exposed personnel, at a minimum. Historical monitoring for the WPL is conducted using Depot Area Agent Monitoring System (DAAMS) located at the immediate work site. The pump location will be immediately downwind of the sampling grid location.

8.4.2 STEL Monitoring

8.4.2.1 **A**reas involving operations where a release of H or L into the operating environment at levels exceeding the STEL can reasonably be expected to occur will be monitored. At this site, this will be defined as areas where excavation for suspected CAIS occurs or other locations where a potential release of H and L might occur. The monitoring will be conducted using equipment capable of measuring the H and L level in real-time or near-real-time ensuring that the duration of 15 minutes associated with the STEL is not exceeded. The monitoring equipment must be set to an alarm or notification level to account for the accuracy and precision of the equipment being used. Records will be maintained of excursions above the STEL including location, time, date, and the names of potentially exposed personnel, at a minimum. Near-real-time monitoring is conducted using the Miniature Chemical Agent Monitoring System (MINICAMS). Appendix D contains CARA's air monitoring plan.

8.4.2.2 A STEL for the chemical agent Lewisite has not been established under the latest requirements for air monitoring. For the purpose of this document, the value of 0.003 mg/m^3 will be referred to as the STEL for Lewisite.

8.5 EXCEEDENCE OF AIRBORNE EXPOSURE LIMITS

8.5.1 Excursion of WPL for Mustard Agent

8.5.1.1 Regardless of monitoring method, when monitoring indicates excursions of mustard agent levels above the WPL, the following actions will be completed:

- Restrict the area until the source is identified and corrected and subsequent monitoring indicates mustard agent levels are below the WPL. Restrictions include administrative controls (reducing stay time) or increased PPE, at the discretion of the SSHO.

- Notice of the WPL excursion will be provided to all site workers. At the first opportunity such as the next site safety briefing, the SSHO will notify the site workers on the WPL excursion. Written notice will be posted at the site office,

command post, or other convenient location. The notice must include the following information:

- Location of the WPL excursion (e.g., work site or sample location).
- Period when the excursion occurred (e.g., between 0900 and 1300 hours).
- Name of chemical agent detected (e.g., mustard).
- WPL of chemical agent in mg/m^3 (e.g., 0.0004 mg/m^3 for mustard).
- Concentration of chemical agent exceeding the WPL in mg/m^3.
- Names of exposed employees.
- Statement of future action to limit future excursions.

8.5.1.2 Notice must also be provided to a competent medical authority. The SSHO will send a copy of the WPL excursion notice for Parsons employees to WorkCare (see Emergency Contact Sheet). The information provided to WorkCare must include the Social Security Numbers of the potentially exposed workers. In addition, notice of WPL excursion will be provided to subcontractors, as applicable. This may be done directly or through the PSHO. The same information contained in the WPL excursion notice plus the contact information for the SSHO must be provided. Additionally, consistent with 29 CFR 1920.1020 all DAAMS work area monitoring results must be forwarded to appropriate authority (i.e., WorkCare for Parsons personnel), irrespective as to whether there was an excursion.

8.5.2 Excursion of STEL for Mustard and Lewisite

When monitoring indicates excursion of airborne mustard and Lewisite in excess of the STEL, the following actions will be completed:

- Reporting of a chemical event must occur for the following circumstances:
  - H or L exceeding the STEL is confirmed by DAAMS.
  - Unprotected personnel have been exposed to a known release of H or L exceeding the STEL for 15 minutes or more.
- Decontamination of personnel exposed to an environment with liquid or aerosol mustard or Lewisite, or where mustard or Lewisite exceeded the STEL. Such personnel will require decontamination to below the STEL prior to release from the CRZ.
- Monitoring and, if necessary, decontamination of PPE exposed to an environment where mustard or Lewisite exceeded the STEL. PPE exposed to liquid or aerosol mustard or Lewisite cannot be reused and must be disposed of.

- Medical examinations must be performed of exposed and potentially exposed workers defined as:
  - Exposed workers exhibit clinical signs or symptoms consistent with vesicant exposure
  - Potentially exposed workers are defined as individuals who were present within an exclusion zone where
    - ☐ Mustard or Lewisite levels exceed the protective capability of the PPE, or
    - ☐ Mustard or Lewisite levels exceed the STEL in the presence of unprotected workers or there is a breach in the PPE of a worker.

8.5.3 Excursion of PELs, TLVs®, and AELs for Phosgene, Chloropicrin and Chloroform,

8.5.3.1 Monitoring for CG, PS, and chloroform will be conducted using MINICAMS. CG, PS, and chloroform are highly volatile compounds and may not be easily confirmed. Therefore, any excursion of the CG and PS PELs, or the chloroform TLV will be assumed real and the appropriate actions will be taken.

8.5.3.2 Excursion of the TLVs for VOCs and airborne particulates will also require immediate actions to be taken. Discussion of the types of air monitoring and associated actions required if excursion occurs for VOCs and airborne particulates is covered in Section 8.6.6 and Tables B-8.1 through B-8.3 of this document.

8.6 MONITORING PROCEDURES

8.6.1 WPL Monitoring for Mustard

CARA will conduct area monitoring to the WPL for mustard. Monitoring will be conducted as described in the CARA Air Monitoring Plan. Open air monitoring for the WPL of mustard will typically involve placing a dedicated DAAMS pump at the excavation site. Additional monitoring support is typically provided by the MINICAMS; however, the MINICAMS cannot be relied upon to detect concentrations of mustard at the WPL.

8.6.2 STEL Monitoring for Mustard and Lewisite

CARA will also conduct monitoring to the STEL for mustard and Lewisite. Monitoring will be conducted as described in the CARA Air Monitoring Plan. Open air monitoring for the STEL involves the use of the MINICAMS at the excavation site. Confirmation of MINICAMS detections is provided by a second DAAMS pump at the excavation site (separate from the DAAMS used to monitor for the WPL).

8.6.3 STEL Monitoring for Mustard and Lewisite for Decontamination Confirmation

8.6.3.1 Monitoring for the STEL is recommended to confirm the decontamination of personnel that have been exposed or potentially exposed to H or L. This monitoring can be conducted in the monitoring chamber of the PDS. Procedures for the monitoring chamber are presented in the CARA Air Monitoring Plan in Appendix D.

8.6.3.2 Monitoring for the STEL is also used to determine whether soil samples or equipment has been contaminated. In these instances, the MINICAMS is typically used although the DAAMS can be used to monitor the headspace for samples and equipment.

8.6.4 HTW Air Monitoring

8.6.4.1 The HTW air contaminants to be measured include volatile organic compounds (VOCs), benzene, and airborne dust. Monitoring of HTW air contaminants will be conducted using a photo-ionization detector (PID), colorimetric tubes, or MINICAMS.

8.6.4.2 A PID will be used to conduct general VOC monitoring during Phase II intrusive activities. A benzene colorimetric detector tube will be used to evaluate the benzene vapor component in the breathing zone when the total sustained concentration of vapors in the breathing zone, as measured with the PID, exceeds 0.5 ppm. Table B-8.1 shows the VOC concentrations in the breathing zone as detected by the PID and also shows the required PPE level.

Table B-8.1
VOC Concentrations and Required PPE Levels

Sustained Concentration of VOCs in Breathing Zone	Required Level of Protection
0 to 10 ppm	Level D
>10 and <50 ppm	Level C
>50 ppm	Level B

8.7 AIR MONITORING WITHIN EXCLUSION ZONE

Components of monitoring and action levels are noted in Table B-8.3 of this chapter. Chemical agent monitoring will be conducted within the EZ (at the excavation) for all intrusive work. Dust monitoring will be conducted only during heavy equipment operations when Level D or Modified Level D protection is being worn and a dust hazard is present. Table B-8.3 details the compounds that will be monitored at the site, parties responsible for monitoring, and how detections are confirmed.

8.8 MINICAMS ALARMS

8.8.1 Immediate Actions

If a MINICAMS alarm occurs that exceeds the current level of PPE protection, the downrange team will don respirators (if the current PPE is Modified Level D), all intrusive activities within the EZ will cease, and the downrange team will proceed to the PDS. CARA will perform confirmation analyses if necessary, as indicated in the CARA Air Monitoring Plan (Appendix D of the SS-WP).

8.8.2 Alarm Notification

If H, L, CG, PS, and/or chloroform are detected in the air, the USAESCH Safety Specialist, and the SSHO will be notified immediately. Appendix D of the SS-WP contains additional information on communication, notification, and other required actions associated with the detection of airborne chemicals.

Table B-8.3
Summary of Air Monitoring Procedures

Compound	Classification / Description	Monitored by	Monitoring Method	Confirmation Method	WPL	STEL	OSHA PEL	ACGIH TLV®	IDLH	Action Level	Action Taken (Summary)
Distilled Mustard (HD)	Blister agent.	CARA	MINICAMS/ DAAMS[1]	DAAMS[2]	**0.0004 mg/m^3**	**0.003 mg/m^3**	*N/A*	*N/A*	**0.7 mg/m^3**	**0.4 x STEL**	CEHNC Site Safety notification (by CARA) is required. Refer to Table B-5.2 for required PPE.
										0.0004 mg/m^3 (WPL)	If WPL exceeded, impose adminstrative controls, provide notice to workers, and implement excursion response.
Lewisite (L)	Blister agent	CARA	MINICAMS/ DAAMS[1]	DAAMS[2]	*N/A*	**0.003 mg/m^3 Ceiling**	*N/A*	*N/A*	N/A	**0.4 x STEL**	CEHNC Site Safety notification (by CARA) is required. Refer to Table B-5.2 for required PPE.
Phosgene (CG)	Choking agent.	CARA	MINICAMS	*N/A*	*N/A*	*N/A*	**0.1 ppm**	**0.1 ppm**	**2 ppm**	**0.7 x PEL**	CEHNC Site Safety notification (by CARA) is required. Refer to Table B-5.2 for required PPE.
Chloropicrin (PS)	Tearing agent	CARA	MINICAMS	*N/A*	*N/A*	*N/A*	**0.1 ppm**	**0.1 ppm**	**2 ppm**	**0.7 x PEL**	CEHNC Site Safety notification (by CARA) is required. Refer to Table B-5.2 for required PPE.
Chloroform	CAIS Component/solvent	CARA	MINICAMS	*N/A*	*N/A*	*N/A*	**50 ppm**	**10 ppm**	**500 ppm**	**0.7 x TLV**	CEHNC Site Safety notification (by CARA) is required. Refer to Table B-5.2 for required PPE.
VOCs: Non-specific	Industrial solvents	Parsons	PID	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	**10 ppm** **50 ppm**	Upgrade to Level C PPE Upgrade to Level B
Benzene	Industrial solvent	Parsons	PID	Colorimetric tubes	*N/A*	**5 ppm**	**1 ppm**	**0.5 ppm**	**500 ppm**	**0.5 ppm** **25 ppm**	Upgrade to Level C PPE Upgrade to Level B

Notes: [1]DAAMS used for general area monitoring of WPL. [2]DAAMS used at excavation. 1 STEL chloroform = 0.2 ppm

8.8.3 Alarm Confirmation

The MINICAMS is a very sensitive instrument and will respond to interferences. As a result, the MINICAMS may produce false alarms. The action levels for air monitoring are listed in Table B-8.3. The standard procedure is to cycle the MINICAMS two additional times. Each cycle is approximately 10 minutes. Three consecutive alarms will be considered an indication of detection. Alarm confirmation will be performed with DAAMS in accordance with the CARA Air Monitoring Plan (Appendix D of the SS-WP).

8.9 TRAINING REQUIREMENTS

8.9.1 In order to comply with air monitoring requirements, the following chemical specific training items will be included in worker hazard communication training:

- An explanation of the types of activities at the site that have a chemical exposure potential
- Methods used to recognize and evaluate work areas with a chemical exposure potential.
- An explanation of the potential acute and chronic health effects associated with chemical exposure and the purpose and description of the chemical medical surveillance program.
- Protective measures including administrative controls, engineering controls, PPE, and safe work practices.
- Emergency procedures including self-aid, buddy-aid, first aid, and decontamination.
- An explanation of the chemical MSDSs and applicable SOPs regarding the handling and disposal of materials contaminated with hazardous chemicals.
- Emergency evacuation and notification procedures (see the Emergency Response and Fire Prevention SOP)

8.9.2 Site workers must have direct access to chemical agent MSDSs and must be readily accessible during an emergency.

CHAPTER 9
HEAT AND COLD STRESS

9.1 HEAT STRESS

9.1.1 Sweating does not cool the body unless the sweat is evaporated from the body. During intrusive sampling activities, a number of the site personnel may be required to wear semi-permeable or impermeable personal protective equipment (PPE). Although initial intrusive sampling work will be conducted in Modified Level D PPE, personnel may be required to upgrade PPE. The use of this PPE reduces the body's ability to eliminate large quantities of heat because the evaporation of sweat is decreased. The body's effort to maintain an acceptable temperature may become impaired and this may cause heat stress. Increased body temperature and physical discomfort also promote irritability and a decreased attention to the performance of hazardous tasks. If semi-permeable and impermeable PPE is used at these sites, heat stress is a MAJOR HAZARD to involved site workers.

9.1.2 Heat stress related problems include heat rash, fainting, heat cramps, heat exhaustion, and heat stroke. Heat rash occurs because sweat is not evaporating, making the skin wet most of the time. Standing erect and immobile 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. Heat cramps are painful spasms of the muscles due to excessive salt loss from profuse sweating. Heat exhaustion occurs due to the large fluid and salt loss from profuse sweating. A person's skin is clammy and moist; and nausea, dizziness, and headaches may occur.

9.1.3 Heat stroke occurs when the body's temperature regulatory system has failed. Skin is hot, dry, red, and spotted. These skin color changes may not be readily evident in darker skinned individuals and other signs must be relied upon. The affected person may be mentally confused, delirious, and convulsions may occur. A person exhibiting signs of heat stroke should be removed from the work area to a shaded area immediately. The 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.

9.2 WORK/REST SCHEDULE

9.2.1 The management of risk for heat stress exposures centers around the principal of job-specific controls. Controls that will be implemented to reduce the potential for worker heat stress includes: use of acclimated workers, providing adequate replacement fluid, educating workers to recognize the early symptoms of heat stress, use

of cooling vest, physiological monitoring, and developing a work/rest schedule that will prevent the onset of heat stress.

9.2.2 When the ambient temperature exceeds 75°F (Level D and Modified D operations) or 60°F (Level C and B activities), the SSHO will institute a work-rest regimen. First, the SSHO will estimate the workers' metabolic heat load using Table B-9.1. Work-rest regimens will then be implemented in accordance with the limits specified in Table B.9.2, for Level D and Modified Level D PPE (Non-Impermeable Ensembles), and Table B.9.3 for Level C and Level B PPE (Impermeable Ensembles).

Table B-9.1
Examples of Activities within Metabolic Rate Categories

Categories	Example Activities
Resting	Sitting quietly
Light	Sitting with moderate leg and arm movement Using table saw Standing with light or moderate work (at bench or operating machine)
Moderate	Scrubbing in standing position Walking about with moderate lifting Using a hand auger Walking on level surface while carrying 7 lb load
Heavy	Sawing by hand Shoveling Intermittent heavy lifting

Notes: Source: 2006 TLVs and Biological Exposure Indices (BEIs) booklet published by the American Conference of Governmental Industrial Hygienists (ACGIH)

Table B-9.2
Work-Rest Schedule Based on WBGT Reading when Level D and Modified Level D is worn

Work – Rest Regimen	Work Load*		
	Light	Moderate	Heavy
Continuous work	87.8°F (31°C)	82.4°F (28°C)	---
75% Work - 25% Rest, each hour	87.8°F (31°C)	84.2°F (29°C)	81.5°F (27.5°C)
50% Work - 50% Rest, each hour	89.6°F (32°C)	86°F (30°C)	84.2°F (29°C)
25% Work - 75% Rest, each hour	90.5°F (32.5°C)	88.7°F (31.5°C)	86.9°F (30.5°C)

Notes: *corresponds to categories in Table B-9.1. Source: 2008 TLVs and BEIs booklet published by ACGIH.

Table B-9.3
Work-Rest Schedule Based on WBGT Reading when
Level B and Level C in worn

Work – Rest Regimen	**Work Load***		
	Light	Moderate	Heavy
Continuous work	68°F (20°C)	62.6°F (17°C)	---
75% Work - 25% Rest, each hour	68°F (20°C)	64.4°F (18°C)	61.7°F (16.5°C)
50% Work - 50% Rest, each hour	69.8°F (21°C)	66.2°F (19°C)	64.4°F (18°C)
25% Work - 75% Rest, each hour	70.7°F (21.5°C)	68.9°F (20.5°C)	67.1°F (19.5°C)

Notes: *corresponds to categories in Table B-9.1. Source: 2008 TLVs and BEIs booklet published by ACGIH.

9.2.3 The worker's heart rate and temperature will be tracked by persons designated by the SSHO to evaluate the effectiveness of the work-rest schedule. The results of down range worker monitoring will be recorded and reviewed by the SSHO. The work-rest schedule will be shortened or extended based on the recommendations of the SSHO for individuals or entire teams.

- To monitor a worker's heart rate, the SSHO, or his designee, will record the pulse rate as early as possible in the rest period.
    - If the worker's heart rate exceeds 110 beats per minute at the beginning of the rest period, the next work cycle should be shortened by one-third (the rest time should remain constant).
    - If the worker's heart rate still exceeds 110 beats per minute at the next rest period, the following work cycle will be shortened again by a third.
- A clinical thermometer or similar device (e.g. temperature strip) should be used to measure the oral temperature of workers at the end of the work period (before drinking).
    - If the oral temperature of a worker increases >2°F during the work period, shorten the next work cycle by one-third.
    - If the oral temperature continues to be elevated >2°F, the next work cycle will again be shortened by a third. This process will continue until elevated temperatures are not observed. Workers can return to work after heart rate and temperature return to normal (usually after 15-minute rest period).
- At the judgment of the SSHO, the work cycle may be extended if oral temperatures of the team remain within 1°F and heart rates are below 110 beats per minute.

9.3 EARLY SYMPTOMS OF HEAT STRESS RELATED PROBLEMS

Workers should recognize the early symptoms of heat stress. These symptoms include:

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

9.4 PREVENTION OF HEAT STRESS

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 person may be predisposed to additional heat related illnesses. To avoid heat stress, the following steps should be taken:

- Adjust work schedules.
    - Modify work/rest schedules according to monitoring requirements.
    - Mandate work slowdowns as needed.
- Perform work during cooler hours of the day, if possible, or at night if adequate lighting can be provided.
- Provide shelter (air-conditioned, if possible) or shaded areas to protect personnel during rest periods.
- Ensure workers are acclimated to weather conditions and have extensive experience in the selected level of protection. Workers can be acclimatized by gradually increasing the workload over a period of days.
- Maintain worker's body fluids at normal levels. This is necessary to ensure that the cardiovascular system functions adequately. Daily fluids 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 that enough water will be drunk 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° to 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 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.

- Train workers to recognize the symptoms of heat-related illnesses.
- Provide potassium supplements (banana or potassium chloride tablets).
- Rotate personnel and alternate job functions.

9.5 COLD-RELATED ILLNESS

9.5.1 Exposure to low temperatures presents a risk to employee safety and health both through the direct effect of the low temperature on the body and collateral effects such as 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. The effects of cold exposure include frostbite and hypothermia. Wind increases the impact of cold on a person's body. Systemic cold exposure is referred to as hypothermia. Local cold exposure is generally labeled frostbite. Recognition of the symptoms of cold-related illness will be discussed during the health and safety briefing conducted prior to the onset of site activities.

9.5.2 Hypothermia is a life-threatening condition in which the core body temperature falls below 95°F. Hypothermia can occur at temperatures above freezing particularly when the skin or clothing becomes wet. During exposure to cold, maximum shivering occurs when the core temperature falls to 95°F. As hypothermia progresses, depression of the central nervous system becomes increasingly more severe (Table B-9.4). This accounts for the progressive signs and symptoms ranging from sluggishness and slurred speech to disorientation and eventually unconsciousness.

9.5.3 Frostbite is both the general and medical term given to areas of cold injury. Unlike hypothermia, frostbite rarely occurs unless environmental temperatures are less than freezing and usually 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. 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. Symptomatically feels “warm” to the victim with a notable cessation of pain.
- **Deep frostbite** - Tissue damage deeper than the skin, at times, down to the bone. The skin is cold, numb and hard.

Table B-9.4
Progressive Clinical Symptoms of Hypothermia

Core Temperature (°F)	Clinical Symptoms
95°	Maximum shivering
87° - 89°	Consciousness clouded; blood pressure becomes difficult to obtain; pupils dilated
84° - 86°	Progressive loss of consciousness; muscular rigidity; respiratory rate decreases
79°	Victim rarely conscious
70° - 72°	Maximum risk of ventricular fibrillation

9.6 PREVENTING COLD EXPOSURE

In preventing cold stress, the SSHO must consider factors relating to both 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.

- **Training** - Recognizing the early signs and symptoms of cold stress can help prevent serious injury. Thus, workers will be trained to recognize the symptoms of hypothermia and frostbite and have appropriate first-aid instruction. When the air temperature is below 50°F, the SSHO will inform workers of the proper clothing requirements and any work practices that are in effect to reduce cold exposure.
- **Administrative Controls** - The SSHO will establish a work/rest schedule based upon worker monitoring. At the first sign of uncontrollable shivering the worker will be rested in a heated shelter. Work will stop when the air temperature reaches 0°F.
- **Clothing** - Workers will be encouraged to layer clothing when air temperature is below 50°F. Clothing that has a high insulation value will be worn under protective garments. Insulated gloves will be worn when the wind chill index is below 32°F.

CHAPTER 10
STANDARD OPERATING PROCEDURES

10.1 GENERAL SAFETY

10.1.1 Field personnel must be able to recognize and understand potential hazards associated with the operations they will be performing. Personnel active in site operations must be thoroughly familiar with the programs, practices, and procedures outlined in this SSHP. SOPs for specific activities are contained in the CWM SI SOP document, which is bound separately.

10.1.2 The following are considered standard safe work practices for work on this project.

- Eating, drinking, chewing tobacco, smoking, and carrying matches or lighters are prohibited in a contaminated or potentially contaminated area or where the possibility for contamination transfer exists.
- Avoid contact with potentially contaminated substances or materials. Avoid, whenever possible, kneeling or sitting on the ground. Do not place monitoring equipment on potentially contaminated surfaces.
- All field members should be alert to all potentially dangerous situations e.g., presence of strong, irritating, unusual, or nauseating odors.
- For each site field personnel shall be familiar with:
    - The potential harmful chemicals,
    - Terrain,
    - Location of work zones,
    - Location of emergency equipment, and
    - Designated PPE and clothing for work assignment.
- All workers will use protective equipment as specified in this SSHP.
- Workers should stay clear of motorized vehicles when in operation.
- Wearing personal protective equipment can result in an impairment of the ability to operate site equipment. All field personnel should pay specific attention to decreased performance capabilities resulting from the use of personal protective equipment, such as poor tactile skills when wearing certain types of gloves. Prior knowledge of limitations imposed by the use of such equipment will allow the worker to assess the decrease in his or her capability to perform field operations in a safe manner.

- Wearing of jewelry, such as rings and loose bracelets and necklaces, is prohibited for personnel operating mechanized or electrical field equipment in order to avoid their entanglement in or interference with such machinery or equipment.
- Overhead power lines or buried cables pose a danger of shock or electrocution if workers contact or sever them during operations. The location of these potential hazards should be ascertained before beginning site activities.
- Buddy system procedures will be enforced during site operations.
- Site personnel will perform only those tasks that they are qualified to perform.
- Site visitors are to be escorted by qualified personnel at all times.
- Running and horseplay are prohibited in all areas of the site.
- The number of personnel in the EZ will be the minimum number necessary to perform the task in a safe and efficient manner.

10.2 CHEMICAL SAFETY

Personnel working in areas suspected of being contaminated with hazardous chemicals will implement the following measures:

- If hazardous chemicals are detected while wearing personal clothing, the clothing will be treated as IDW and disposed of appropriately. If hazardous chemicals are not detected, the clothing will be washed between uses.
- Open sores or wounds will be covered with a dressing prior to admittance to the downrange site.
- Areas where CAIS is suspected of being present will be clearly identified to all site personnel. Personnel will be reminded of the possible presence of CAIS during morning safety meetings.
- Eating, drinking, chewing and smoking will not be permitted in work areas suspected of containing CAIS. The SSHO will designate safe locations (separated from the work areas) where these activities will be allowed.
- Supplies of decontaminating solutions and emergency flushing devices for personnel decontamination will be made available in work areas where intrusive activities are in progress.
- Each worker will be examined for signs of chemical exposure before leaving the worksite. If signs of possible exposure are detected, the individual will be immediately transported to the local medical facility for further examination.

10.3 ORDNANCE SAFETY

Maximum safety in any UXO operation can be achieved through adherence to applicable safety precautions. Only those personnel necessary to the operation shall be allowed in the exclusion zone during UXO activities (DOD 6055.9-STD). **Only persons who are qualified under DID MR-025 personnel standards are authorized to handle**

UXO. Detection and identification of suspect explosive materials will be accomplished IAW Chapter 13, TM 9-1300-214, "Military Explosives." Procedures for ordnance safety are contained in EM-385-1-97, September 2008 Explosives Safety and Health Requirements Manual. Anomaly avoidance (defined as the avoidance of MEC while digging, sampling, or any other activities conducted around the MEC item) in support of non-intrusive activities and site inspections will be conducted IAW with Chapter 5 of the US Army Corps of Engineers, Engineer Pamphlet EP 75-1-2, 01 August 2004, Munitions and Explosives of Concern (MEC) Support During Hazardous, Toxic, and Radioactive Waste (HTRW) and Construction Activities.

10.4 GENERAL SANITATION

Section 2 of EM 385-1-1 lists and describes these sanitation issues, to include the following:

10.4.1 Drinking Water

Cool potable drinking water will be provided in sanitary, portable containers at all sites. Disposable cups will be provided and used to drink from coolers/containers.

10.4.2 Toilets

A minimum of one chemical toilet will be provided and located in the support zone.

10.4.3 Hand-Washing Facilities

Hand-washing facilities will be provided at this site during field activities. Personnel will ensure that hand washing is performed prior to eating or drinking.

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CHAPTER 11
PUBLIC SAFETY

11.1 EXCLUSION ZONE (EZ)

During intrusive activities, an EZ will be established to minimize the potential for contamination to leave the work area, and to reduce the risk of exposure to humans. Access to the EZ will be limited to essential personnel conducting the fieldwork. Ingress and egress from the EZ will be made through a decontamination station. Support staff and other non-essential personnel will remain outside the EZ while it is in effect. Actual positions of the decontamination station will vary depending on the site conditions, access, and prevailing wind direction. Chapter 3 of the SS-WP discusses the Maximum Credible Event (MCE) used to establish the EZ. Exclusion zones for each target location are provided in Figure B-11.1.

11.2 PUBLIC SAFETY PROTOCOLS

11.2.1 Intrusive Sampling

Property owners will be notified, in advance, of the schedule for the work in their vicinity. All coordination will be completed by USACE, Kansas City District (CESWK). If necessary, public roads will be closed or controlled and monitored, and site perimeters will be marked or guarded to ensure the public does not inadvertently enter into the area encompassed by the EZ, or within the minimum separation distance for ordnance. All intrusive sampling activities will cease should a member of the public enter the EZ area, or should a stakeholder or site worker inadvertently enter an unauthorized area.

11.2.2 Evacuation and Shelter-in-Place Not Required

There are no residences in the immediate vicinity of the sampling grid within the former Schilling AFB. Since there are no occupied buildings or residences located within the EZ, evacuation or shelter-in-place is not necessary. It is noted that the Salina Airport is on the former Schilling AFB, just northeast of the site, but is approximately 3,400 feet away from the investigation area, and well outside any expected EZ distance.

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Figure B-11.1

Exclusion Zone Locations
Schilling Air Force Base
FUDS Project # B07KS0256

Salina, Kansas

Legend

- Soil Sample Locations
- Exclusion Zone (433 feet)
- Sampling Area Grid (See Note 1) Grids 60 ft x 36 ft

Note:
1) Ten additional discretionary samples will be taken based on field observations, which may include areas outside sampling grid area. Exclusion Zone of 433 feet will be implemented for sample locations outside of grid area if necessary.

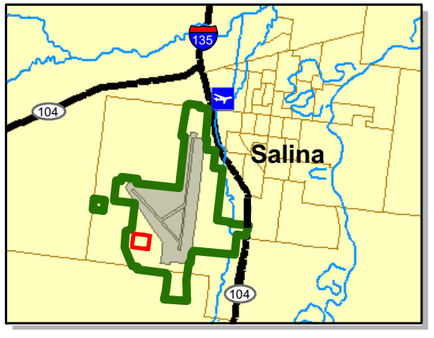

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Image Source: 1954 Aerial
Projection: NAD 83 UTM Zone 14N

0 125 250 500 Feet

PARSONS	U.S. ARMY ENGINEERING & SUPPORT CENTER HUNTSVILLE, ALABAMA

DESIGNED BY: CR	Schilling Air Force Base	
DRAWN BY: CAtB		
CHECKED BY: JC	SCALE: As Shown	PROJECT NUMBER: 745080
SUBMITTED BY: CAtB	DATE: January 2010	PAGE NUMBER:
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CHAPTER 12
SITE CONTROL MEASURES

A discussion of site control measures is provided in Chapter 3 of the PWP.

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CHAPTER 13
PERSONAL HYGIENE AND DECONTAMINATION

13.1 INTRODUCTION

Decontamination of field personnel and equipment exiting an area of potential contamination is required if hazardous chemicals are detected (either through air monitoring or visual inspection). The extent of decontamination depends on a number of factors, the most important being the type and concentration of the contaminant involved. Decontamination will only be required if hazardous contaminants are detected or if CAIS or CWM is found. Confirmation of decontamination of injured personnel prior to leaving the site will be conducted using MINICAMS. Only the MINICAMS will be available for use at the Schilling AFB SI, therefore, injured personnel that have been working within the EZ in the event of a detection of CAIS-related COI or release will process through the PDS and then will be monitored using the MINICAMS for verification of decontamination. This process will apply to casualties, personnel that have breached their PPE, or when monitoring indicated a detection greater than the established level of PPE. In the event that severe trauma occurs, confirmation of decontamination of the victim will be at the discretion of the SSHO. This chapter discusses decontamination of personnel. Chapter 14 discusses decontamination of equipment.

13.2 DECONTAMINATION PROCEDURES FOR PERSONNEL

13.2.1 General

13.2.1.1 To reduce or control gross contamination at the source, an emergency personnel decontamination station (EPDS) will be established in the EZ, downrange near the sampling location. The EPDS (step pan/water/bleach/brushes) is used for gross decontamination but, during a true emergency may be by-passed if there is an imminent danger to one of the team members due to an accident.

A personnel decontamination station (PDS) will be established in the CRZ to facilitate decontamination in the event contamination is encountered and to prevent EZ personnel from transferring contamination to the Support Zone (SZ). This PDS will not be staffed by a dedicated crew, but will be used when CAIS is suspected or air monitoring indicates potential exposure to CAIS chemicals (i.e. 3 consecutive MINICAMS alarms). At a minimum, personnel within the EZ will proceed through the EPDS and complete a gross decontamination of boots and hands. Personnel entering or exiting the EZ during set-up and sampling operations will report to the PDS. The PDS will be set up for sampling operations with significant risk of exposure to hazardous chemicals regardless of PPE level in current use. This is done as a contingency in the

event that CAIS-realted chemicals are detected. The SSHO will be responsible for ensuring that the PDS is staffed when required.

13.2.1.2 As personnel move through the PDS, PPE will be removed in the order of highest to lowest potential contamination. This outside-in removal process will be used to minimize the contamination of inner clothing or the body.

13.2.1.3 Personnel will wash hands, face, and other exposed skin areas immediately after leaving the CRZ for shift change, breaks, lunch or at the end of each work day.

13.2.1.4 The SSHO is responsible for ensuring the EPDS, at a minimum, is set-up each day and ready for operation prior to sampling operations. The PDS corridor will be lined with 10-mil or greater plastic sheeting and will be large enough to contain the pans and tubs required for the stations detailed in Table B-13.1 and shown on Figure B-13.1. The PDS must also accommodate any spillage, splash or over spray which may occur during the use of these stations. Used water will be poured or pumped into a container. In the event of a CAIS chemical detection or if CAIS or CWM is encountered, the decontamination water will be sampled by Parsons and analyzed by CARA for H and L. The sample results will determine if the waste is to be handled.

13.2.2 Personnel Decontamination Procedures

13.2.2.1 In the event that CAIS, CWM, or HTW is encountered, site personnel will decontaminate thoroughly, remove PPE very carefully, and follow the decontamination procedures outlined in the following paragraphs, to minimize the potential for contaminant contact and migration. Site personnel using these procedures must remember and understand that improper decontamination can lead to not only personal contamination, but also to contamination of other site personnel, equipment, personal property, and the general public. If there are no indications of chemical agent during sampling activities, workers will still wash hands, face, and boots. Skin decontamination will be conducted using a soapy water wash and water rinse. If CAIS chemicals are detected on three consecutive MINICAMS cycles, downrange personnel will be monitored for verification of decontamination after processing through the PDS. The downrange personnel will enter the monitoring chamber of the PDS and use the MINICAMS to perform this decontamination verification.

13.2.2.2 Table B-13.1 contains the standard operating procedures that will be followed during decontamination of personnel wearing modified Level D protective ensemble. Personnel working in Levels C and B protection will undergo decontamination as indicated in Table B-13.2.

Table B-13.1
Stations for Modified Level D Decontamination

Station		Tasks
Station 1:	Segregated equipment drop	1. Deposit equipment used downrange (tools, sampling devices and containers, monitoring instruments, radios, clipboards, etc.) on plastic drop cloths or in containers with plastic liners. Segregation at the drop reduces the probability of cross contamination.
Station 2:	Boot decontamination	2. Water rinse for gross boot cleaning.
Station 3:	Gross decontamination	3. Wash boots and gloves with cleaning solution followed by a rinse.
Station 4:	PPE removal	4. Remove outer boots and gloves. If hazardous chemicals detected: Remove outer garments*.
Station 5*	APR removal	5. Remove mask and place in plastic bag
Station 6:	Wash	6. Wash hands and face. (Wash basin with water needed)
Station 7:*	Decontamination Monitoring	7. Personnel suspected to have been exposed to H or L will be monitored via MINICAMS for verification of decontamination

*This station will be incorporated into Modified Level D decontamination procedure when multiple MINICAMS "alarms" occur

Figure B-13.1
Generalized PDS Layout

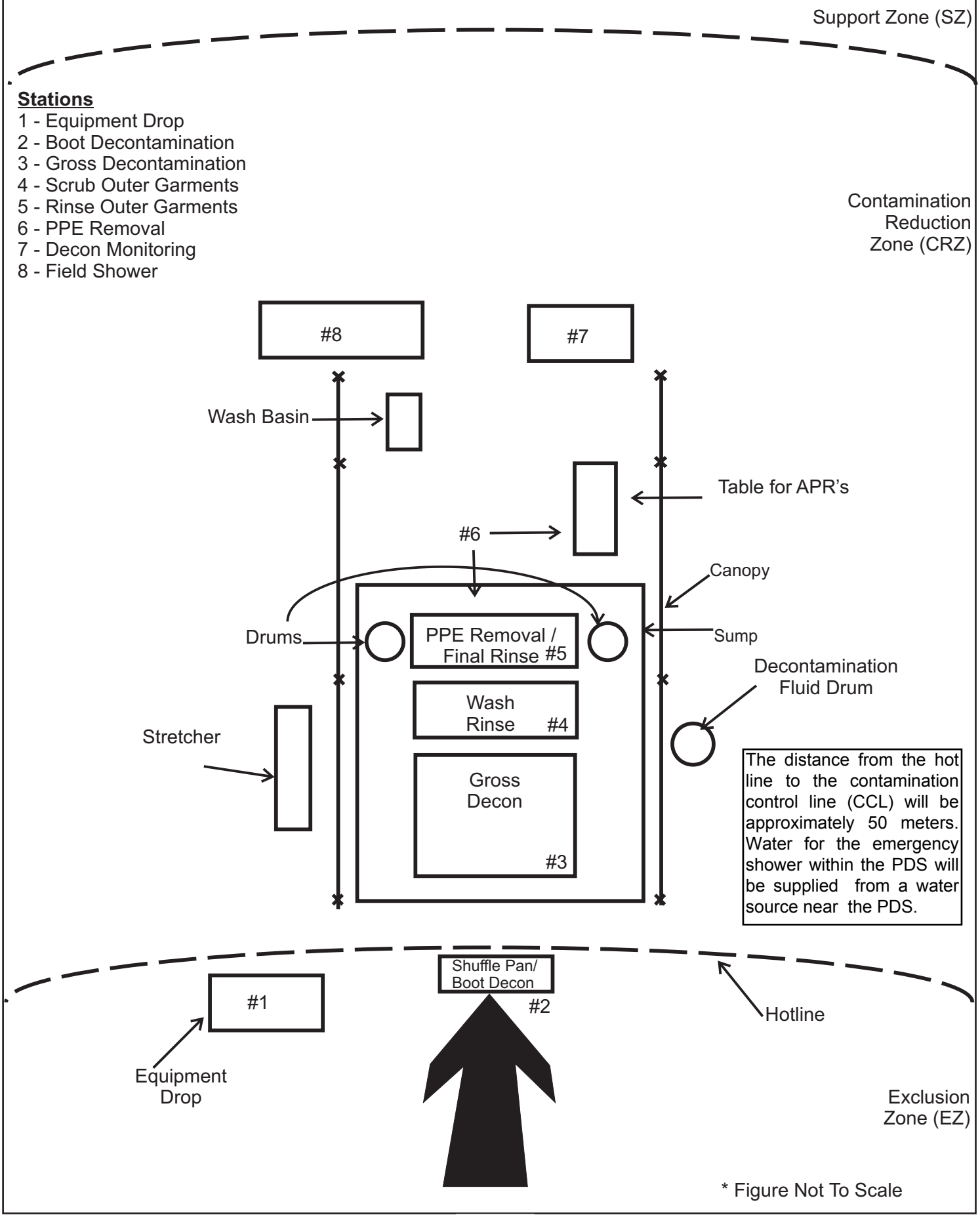

Table B-13.2
Stations for Levels C and B Decontamination

Station		Tasks
Station 1:	Segregated Equipment Drop	1. Deposit down range equipment (tools, sampling devices and containers, monitoring instruments, radios, clipboards, etc.) on plastic drop cloth or in container with 6-mil liner.
Station 2:	Boot decontamination	2. Water rinse for gross boot cleaning.
Station 3:	Gross decontamination	3. Spray decon solution on outer garments starting at the top of head and proceeding down to boots (concentrate on folds between fingers, underarms, and soles of boots).
Station 4:	Scrub outer garments	4. Scrub outer garments from head to toe using soap and water (again focus on folds, between fingers, underarms, and soles of boots).
Station 5:	Rinse outer garments	5. Rinse off soap and decon solution using copious amounts of water. (Repeat as necessary to completely remove decon solution and soap).
Station 6:	PPE removal	6. 1) Remove tape from wrist and ankles. 2) Remove outer garments. If SCBA worn, PDS personnel will remove SCBA before outer garments are cut. Worker will remain in mask. 3) Remove inner garments. 4) Remove mask
Station 7:	Decontamination monitoring	7. Personnel will be monitored via MINICAMS for verification of decontamination, if exposed to H or L environment.
Station 8:	Emergency Shower	8. Personnel enter emergency field shower. This step is only used in the event of detection downrange or if CAIS or CWM is discovered and H and L are suspected.

13.2.3 Daily PDS Shutdown Procedures

After the last work period, the last person through the PDS, with the assistance of a buddy, will secure the PDS using procedures that allow the last person to simultaneously decontaminate as the PDS is secured. To do this, the last person will initiate securing the PDS at the first station and work back conducting personal decontamination and PDS security at the same time. This will be accomplished using the following general procedures (refer to Tables B-13.1 and B-13.2):

- First gather and remove from the PDS all reusable equipment and transfer to the SZ to be stowed.
- Wearing appropriate PPE (as specified in Chapter 5 of this SSHP), cross the hot line, if applicable, wash and rinse suit and then, moving from dirtiest to

cleanest, transfer decontamination solutions to their respective storage containers.

These procedures will only be required in the event CAIS or CWM is found or hazardous chemical detection in air..

13.3 EMERGENCY DECONTAMINATION PROCEDURES

13.3.1 General

In addition to routine decontamination procedures, emergency decontamination procedures must be established. In an emergency, the primary concern is to prevent loss of life or severe injury to site personnel. If immediate medical treatment is required to save a life, decontamination should be delayed until the person is stabilized. If decontamination can be performed without interfering with essential life-saving techniques or first aid, or if a worker has been contaminated with an extremely toxic or corrosive material that could cause severe injury or loss of life, decontamination must be performed immediately.

13.3.2 Physical Injury

13.3.2.1 Physical injuries can range from a sprained ankle to a compound fracture, from a minor cut to massive bleeding. Depending on the seriousness of the injury, care may be given at the site by personnel trained in first aid. For minor medical problems or injuries that involve exposure to hazardous chemicals, the normal decontamination procedure should be followed. Following decontamination procedures, onsite support personnel will stabilize for transport to a medical facility, if necessary.

13.3.2.2 For more serious injuries involving hazardous chemicals, additional assistance may be required at the site or the victim may need to be transported to a medical facility. Life-saving care should be started immediately, without considering decontamination. The outside garments need not be removed unless they cause delays, interfere with treatment, or aggravate the problem. Respirators and backpack assemblies must always be removed. Chemical-resistant clothing can be cut away. If the outer contaminated garments cannot be safely removed, the individual should be wrapped in plastic, rubber, or blankets to help prevent contaminating medical personnel and the inside of the ambulance. Outside garments can be removed and decontamination performed at the medical facility. Should any decontamination of injured personnel be required after transport from the site, site personnel will accompany the injured to notify and assist the receiving medical facility. If there are no indications of chemical agent, injuries may be treated down range without decontamination or moving the injured.

13.3.3 Heat Stress

Heat-related illnesses range from mild heat fatigue to life-threatening heat stroke. Heat stroke requires prompt treatment to prevent irreversible damage or death. Less serious stages of heat stress also require prompt attention because they can progress to heat stroke. Decontamination should be omitted or minimized and treatment begun

immediately, unless the victim is obviously contaminated. Protective clothing should be cut off.

13.3.4 Hypothermia and Frostbite

Cold-related illnesses range from mild to severe forms of hypothermia and frostbite. Both illnesses should be easily detected at mild stages of development. Decontamination procedures should be conducted as normal. However, staff should work as quickly as possible in order to begin proper treatment.

13.3.5 Chemical Exposure

13.3.5.1 Exposure to chemicals can be divided into two categories:

- Injuries from direct contact, such as acid burns or inhalation of toxic chemicals; and
- Injuries caused by gross contamination of clothing or equipment.

13.3.5.2 For inhaled contaminants, only qualified physicians can perform treatment. If the contaminant is on the skin or in the eyes, first-aid treatment generally includes flooding the affected area with water.

13.3.5.3 When protective clothing is grossly contaminated, contaminants may be transferred from the wearer to treatment personnel and cause injuries. Unless severe medical problems have occurred simultaneously with the chemical splash, the protective clothing should be washed off as rapidly as possible and then carefully removed.

13.4 CONTAMINATION CONTROL

13.4.1 This chapter outlines the measures that will be taken to control contamination and prevent it from leaving the EZ.

13.4.2 The decontamination procedures described in Chapter 13.2 will be the primary sources of contaminant control. Also, as indicated previously, all wastewater generated from decontamination procedures will be collected onsite, tested, if necessary, and disposed of accordingly. In addition to these procedures, measures will be taken to limit the movement of dust and vapors that may be generated within the EZ.

13.4.3 Eating, drinking, smoking, chewing, and application of cosmetics shall be restricted to the clean (support) zone, except drinking of replacement fluids, which shall be permitted in designated areas of the CRZ. Personnel who have been exposed to contaminated material (based on air monitoring data) will be processed through the decontamination line before they are allowed to drink or eat.

13.4.4 Personnel who may be required to wear respiratory protective equipment, either on a routine or emergency basis, must shave beards or other facial hair which interfere with the proper fitting of respirators. Any abrasions in the site personnel's skin (cuts, bruises, etc.) will be covered with a band-aid or adhesive tape before the operator dons protective clothing.

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CHAPTER 14
EQUIPMENT DECONTAMINATION

14.1 PROCEDURES FOR HAND-HELD EQUIPMENT DECONTAMINATION

14.1.1 All hand-held equipment and tools used inside the EZ remain in the EZ until work is completed at the site. If hazardous chemicals are detected and confirmed, hand tools and equipment used on site will receive, at a minimum, a three-stage wash and rinse prior to leaving the EZ. The first stage is a wash in a 5% bleach solution. The second stage is a wash consisting of soapy water. The third step involves rinsing the item in clean water. All decontamination fluids will be collected in pans or buckets. The fluids will be containerized, tested, and disposed of properly based upon the analytical results. After this three-stage wash/rinse cycle, hand tools/equipment can be removed from the EZ, upon inspection and approval by the SSHO or USAESCH Safety Specialist. Further use of these tools on this project will be allowed.

14.1.2 Hand tools and equipment with porous surfaces, such as those with wooden or foam covered handles, may allow for the absorption of contamination. If H or L is suspected, items of this nature should be kept in the EZ until headspaced (heated and monitored for H and L vapors) and disposed of as potential hazardous waste, as analytical results indicate.

14.1.3 If directed by the USAESCH Safety Specialist, items with potentially absorbed or surface H or L contamination will be tested by CARA personnel after the items have been decontaminated in accordance with the procedure in Chapter 13.2. Items will be headspaced for traces of H or L in accordance with procedures presented in the CARA Air Monitoring Plan (Appendix D). Items that show evidence of off-gassing H or L shall be classified as contaminated and disposed of in accordance with the IDW Plan. Additional testing for contamination from other sources will be performed after decontamination as necessary.

14.1.4 Whenever possible, equipment that could receive internal contamination or equipment that cannot be washed and rinsed will be encapsulated in plastic prior to being placed in the EZ. For example, industrial air-monitoring equipment that is not water sealed can be wrapped in plastic with the exception of the air-sampling inlet. After the air monitor is taken from the EZ, the plastic can be removed, the inlet cleaned, and as long as a chemical release did not occur during site activities, the monitor can be taken out of the CRZ. If a chemical release did occur, then any hand-held equipment with the potential for internal contamination would be considered contaminated and would be double plastic bagged and held, pending guidance from USAESCH.

14.2 HEADSPACE PROCEDURES

Headspace monitoring during decontamination will be performed by CARA. Procedures for headspace monitoring are presented in Appendix D.

14.3 PROCEDURES FOR HEAVY EQUIPMENT AND VEHICLE DECONTAMINATION

14.3.1 To the extent possible, all heavy equipment will remain outside of the EZ. If heavy equipment requires decontamination, a decontamination sump will be built adjacent to the PDS.

14.3.2 Proper decontamination of equipment is extremely important to ensure contamination is not spread to uncontaminated portions of the site or to site personnel. The layer of protection will be changed as needed to prevent the spread of contamination to surfaces inside the operator area.

14.3.3 All equipment requiring maintenance or repair will be staged in the CRZ prior to servicing. The SSHO or USAESCH Safety Specialist will properly inspect, and approve for general cleanliness, all heavy equipment prior to the equipment exiting the CRZ for the SZ. In order for a vehicle or piece of heavy equipment to pass inspection, it must be in a broom-clean condition, free of loose dirt or stabilized material on tailgates, axles, and wheels. All surfaces that contacted potentially contaminated materials, including soil, will be given a wash, in accordance with Chapter 13.2 of this SSHP, and clean water rinse. Approval for heavy equipment removal from the CRZ will be based on visual inspection of all exposed surfaces, and if needed, the analysis of smear samples.

14.3.4 Personnel assigned to heavy equipment and vehicle decontamination shall wear the protective equipment, clothing, and respiratory protection consistent with the levels of PPE worn during the site activities during which the heavy equipment/vehicle became contaminated. Unless a full-face respirator is worn as part of this requirement, the decontamination personnel will wear a splash shield during the decontamination of heavy equipment/vehicles.

14.3.5 Heavy equipment taken into the EZ will be left in the EZ and shall be inspected and decontaminated if an alarm or contact with suspect CAIS-related chemicals occurs. Gross decontamination (brush off and remove any visible contamination) of contaminated equipment (or equipment components which come into contact with contamination) will be performed and the equipment or equipment components will be moved to the decontamination sump, pressure washed, and scrubbed to remove all gross debris. The equipment (or components) will then be washed with bleach solution and brushes. The equipment (or components) will then be rinsed with water and retested. If no further contamination is detected, the equipment may be returned to the rental company, as applicable. If H or L is detected, the equipment (or components) will be re-cleaned. To perform headspace analysis of heavy equipment, equipment components which have come into contact with soil will be covered in plastic.

CHAPTER 15
EMERGENCY AND FIRST AID EQUIPMENT

15.1 FIRST AID EQUIPMENT

15.1.1 First aid kits for the treatment of minor injuries and burns will be maintained onsite by the SSHO. The first aid kits will meet the requirements for Type III kits contained in EM 385-1-1. First aid kits will be kept at the following locations.

- Work vehicles used onsite.
- CP
- PDS

15.1.2 An eyewash station will be maintained on site that meets the flow requirements of EM 385-1-1, para. 06.B.02 (b) (at least 0.4 gallons per minute for 15 minutes or more)

15.2 FIRE FIGHTING EQUIPMENT

Fire extinguishers will be maintained onsite by the SSHO in accordance with EM 385-1-1. Fire extinguishers will be placed in each work vehicle, in occupied trailers, and at all other locations specified by this work plan.

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CHAPTER 16
EMERGENCY RESPONSE PLAN

16.1 INTRODUCTION

Emergency response procedures are provided in the CWM SI SOP document. Notification procedures and information on emergency medical treatment are discussed below.

16.2 EMERGENCY NOTIFICATION PLAN

The purpose of this plan is to provide a process for emergency notification of Emergency Management Agencies, USACE, project management, and the Kansas Department of Health and Environmental (KDHE).

16.2.1 Agencies to be Notified

The following agencies will be notified though their operations center or primary point of contact, depending on the situation. For emergency notification, agencies will be contacted via two forms of communication (phone and email), as applicable. Phone calls will be made to one individual at a time starting at the top of the notification list until a person is successfully reached, at this point phone notification to that agency will stop. Additional notification within these agencies will be the responsibility of the agencies. The operation centers or primary contacts, email addresses, and phone numbers are provided in Table 16.1

Table 16.1
Emergency Notifications

USACE Kansas City District			
Kansas City District PM	Kurt Baer	(816) 389-3922	kurt.h.baer@usace.army.mil
USACE Huntsville			
Project Manager	Paula Henderson	Cell: (256) 655-1239	paula.k.henderson@usace.army.mil
Project Co-Manager	Lindsey Miller	Cell: (256) 714-5892	lindsey.w.miller@usace.amry.mil
USAESCH Safety Specialist	TBD		
Materiel Response			
CWM Emergency Response	22d Chemical Battalion (TE)	410-436-2148	To be contacted by local police.
UXO/MEC Emergency Response	FORSCOM 52nd Ord Group 24-hr Emergency Number	(404)464-5222 FORSCOM (404) 469-3325 52nd Group	To be contacted by local police.
Emergency Management and Local Agencies			
Salina Regional Health Center	400 South Sante Fe Ave. Salina, KS 67401	**Emergency: Dial 911** (785) 452-7000	
Statcare Family Medical Clinic & Minor Emergency Center	1001 S. Ohio Street Salina, KS 67401	(785) 827-6453	
Salina Fire Department	222 West Elm Street Salina, KS 67401	**Emergency: Dial 911** Office: (785) 826-7340	
Salina Police Department	255 North 10th Salina, KS 67401	**Emergency: Dial 911** Office: (785) 826-7210	
Poison Control Center		(800)-876-4766	
Salina Airport Authority	Gunner Wiles 3237 Arnold Ave.	(785) 827-3914	gunner@salair.org
Parsons			
Project Manager	Kimberly Vaughn	(512)658-6828 cell	kimberly.Vaughn@Parsons.com
Task Manager	Chris tenBraak	(303) 831-8208 cellular	chris.tenbraak@parsons.com
Project Health and Safety Manager	Ed Grunwald	(678) 429-6887 cellular	ed.grunwald@parsons.com
OE Safety	Michael Short	(404)387-0798 cellular	michael.short@parsons.com
Site Manager	TBD		
Site Safety / QC	TBD		
Work Care (Parsons Health Monitoring)			
Account Service Team Leader	Michelle Bui	800-455-6155 ext. 475	

16.2.2 Emergency Notification

16.2.2.1 In an emergency, Parsons will notify the USAESCH on-site Safety representative who will make additional notifications (calls and email). Parsons will be responsible for its own internal notification. For the emergency notifications, an email will be sent to the emergency notification list detailed above as soon as practical following an emergency after DoD notifications has been made. Phone calls will be made as soon as possible to one individual at a time starting at the top of the notification list until a person is successfully reached, at this point phone notification to that agency will stop. Additional notification within these agencies will be the responsibility of the agencies.

16.2.2.2 Emergency notifications will be made as soon as possible when any of the following circumstances occur:

1. Illness or Injury requiring Outside Medical Attention
2. Confirmed CAIS
    a. Chemical related accident or injury
    b. Air monitoring confirms a detection of CAIS chemical

Each of these types of notification is described below.

16.2.2.1 Illness or Injury (Non– Chemical Related)

For any illness or injury that requires transport to a medical facility or outside medical support, an email will be sent with the following subject line: "Non-Chemical Illness or Injury – Former Schilling AFB – [date]." The email will be sent along with a copy of the accident report within 24 hrs of occurrence to the agencies described above:

- Type of Illness / Injury (Personal Information will be Withheld)
- Location, date, and time. A brief description of the situation and actions taken

16.2.2.2 Confirmed CAIS / Chemical Incident

When CAIS is confirmed or a chemical incident occurs, an email will be sent with the following subject line: "[Confirmed CAIS] or [Chemical Incident] – Former Schilling AFB – [date]." As soon as practical after confirmed CAIS has been found or following an incident after DoD notifications have been made, a notification email will be sent with the following information, depending on the find or type of incident.

CAIS Chemical Incident / Air Monitoring Detection

For a CAIS chemical related incident or accident or confirmed detection of hazardous chemicals, the following information will be included in the email to the agencies described above:

- Type of find or incident
- Number of exposed and potentially exposed persons, if any
- Chemical released, if any
- Type of monitoring equipment used
- Location and time of incident

Provide a brief description of actions being taken. Note that confirmation results from air sampling pumps will not be available until the end of day or next day.

CAIS Confirmed

When an item is confirmed to be CAIS, the following information will be included in the email sent to the agencies described above:

- Type of CAIS and filler (if known)
- Current location of item(s)
- Date and time excavated
- Date and time identified as CAIS

Should any incidents occur Huntsville personnel and on-site contractor personnel will provide information to 911 responding agencies.

16.2.2.3 Updated Notification

An updated notification email will be sent when significant new information about one of the emergency notifications has become available. The original subject line including the date should be used followed by the word "UPDATE." This will avoid confusing an update with a second incident.

16.3 EMERGENCY MEDICAL TREATMENT AND FIRST AID

16.3.1 The site team has a full complement of First Aid and CPR trained personnel. First aid procedures are covered by the Emergency Response SOP in the CWM SI SOP document.

16.3.2 For major medical emergencies, dial 911. When dialing 911, be sure to provide your exact location within the Schilling AFB, and do not hang up until after the EMS dispatcher has hung up. EMTs will administer emergency medical care and make the appropriate decisions for transport of the injured to the proper hospital locations according to their approved procedures.

16.3.3 The closest full service hospital and emergency room reasonably accessible by ground transportation is Salina Regional Health Center in Salina, Kansas, about 5 miles northeast (Figure B-16.1).

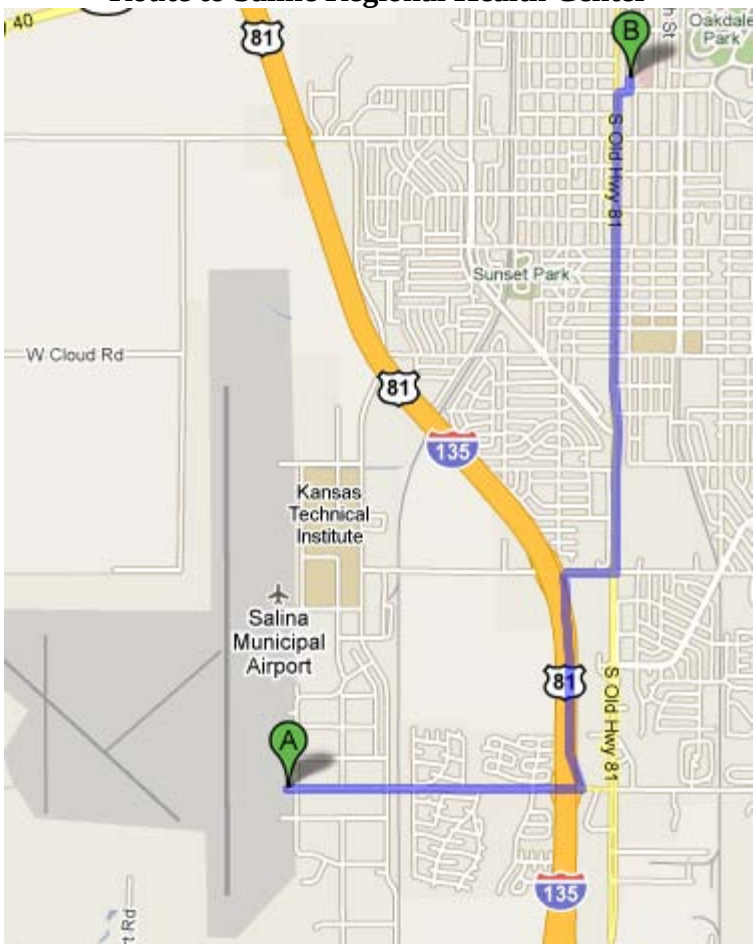
16.3.4 For minor injuries, project personnel can transport personnel to Statcare Family Medical Clinic & Minor Emergency Center in Salina, Kansas, about 7 miles northeast (Figure B-16.2).

Driving Directions:

From: Salina Airport Authority
To: Salina Regional Health Center
400 S. Santa Fe Ave.
Salina, KS 67401
(785) 452-7000

1. Exit the airport, head east on West Schilling Road for approximately 1.4 miles.
2. Turn left to merge onto I-135 N/US-81N.
3. Drive on interstate for less than a mile, and then take exit 90 for Magnolia Road.
4. Turn right onto Magnolia Road.
5. Take 2nd left onto South 9th Street and head north for 2.2 miles.
6. Turn right at West Prescott Avenue.
7. Take 1st left onto South 8th Street; Hospital will be on the right.

Figure B-16.1
Route to Saline Regional Health Center

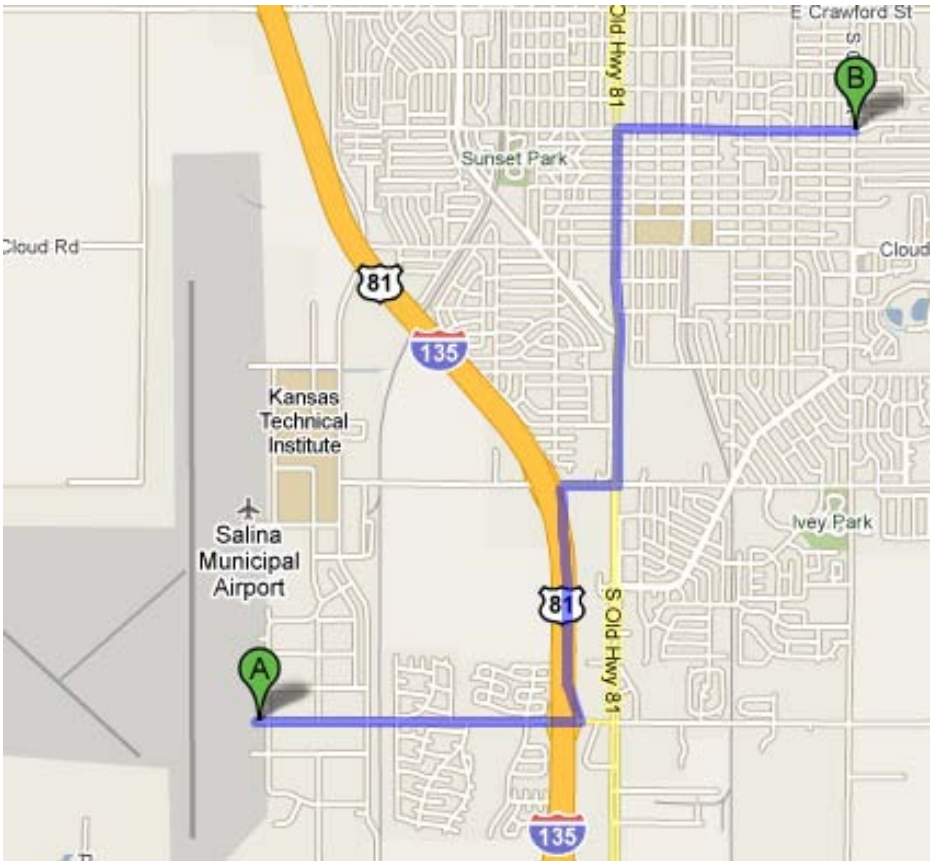


Driving Directions:

From: Salina Airport Authority
To: Statcare Family Medical Clinic & Minor Emergency Center
1001 S. Ohio Street
Salina, KS 67401
785-827-6453

1. Exit the airport, head east on West Schilling Road for approximately 1.4 miles.
8. Turn left to merge onto I-135 N/US-81N.
9. Drive on interstate for less than a mile, and then take exit 90 for Magnolia Road.
10. Turn right onto Magnolia Road.
11. Take 2nd left onto South 9th Street and head north for 1.5 miles.
12. Turn right at Republic Avenue.
13. Drive on Republic Avenue for one mile, medical clinic will be on the left on the corner of Republic Avenue and Ohio Street.

Figure B-16.2
Route to Statcare Family Medical Clinic & Minor Emergency Center



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CHAPTER 17
EMERGENCY RESPONSE TEAM

In the event of an accident, the following parties will have the responsibilities detailed below.

17.1 EMERGENCY RESPONSE TEAM

- Locate all victims, assess their conditions, and make an on-scene determination of the resources needed to stabilize and transport.
- Request emergency response by outside agencies (dial 911), if required.
- Assess the situation and determine the existing hazards, potential for additional hazards, and need for additional response. Supervisors must ensure the hazardous condition is stabilized, eliminated, or permanently fixed. If personnel or properties are jeopardized, a determination must be made to alert the local community.
- Remove injured personnel from the area. Decontamination, if required, will be accomplished through the PDS.

17.2 SSHO

The overall responsibility during emergencies rests with the SSHO. In case of emergency, the SSHO will implement the site emergency procedures. The SSHO is specifically responsible for the following:

- Implementing the site Emergency Response Contingency Plan, 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 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 USAESCH Project Manager.

17.3 ALL ONSITE PERSONNEL

Onsite personnel are responsible for reporting emergencies immediately to their supervisors, alerting other employees, helping injured personnel, and assisting as directed to mitigate the incident.

17.4 EMERGENCY TRAINING

Prior to initiating the intrusive operations, the following will occur under the direction of the SSHO and PSHO:

17.4.1 Team Training

This will include the following:

- Hazard communication;
- Emergency procedures;
- CAIS-specific health and safety; and
- Donning/Doffing of PPE.

CHAPTER 18
CONFINED SPACE ENTRY

Confined space entry is not anticipated as part of any of the investigation.

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CHAPTER 19
LOGS, REPORTS, AND RECORDKEEPING

Recordkeeping procedures are provided in Chapter 2 of the PWP.

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ATTACHMENT 2
ACTIVITY HAZARD ANALYSIS

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ACTIVITY HAZARD ANALYSIS

AIR MONITORING

ACTIVITY HAZARD ANALYSIS

Activity: AIR MONITORING

Principal Steps	Potential Safety/Health Hazards:	Recommended Controls
Set up and calibrate air monitoring equipment.	Contact with chemical agent or other hazardous chemicals	Personnel will don the proper PPE commensurate with the chemical hazard. CWM, HTW, and UXO training and safety awareness during site-specific training and refreshed during morning tailgate briefing. Use face shield as appropriate.
	Slips, trips, and falls	Worker awareness of potential slippery surfaces and tripping hazards plus inspection and policing of debris.
	Cold and heat stress injuries	UXOSO will implement heat stress/cold injury control program.
	Vehicle traffic in work area	Operation of vehicles in accordance with the SSHP. Be alert when working in areas with vehicles traffic. Use ground guide when backing vehicles.
	Noise	Hearing protection will be worn in hazardous noise areas (85dBA or greater).
	Pressurized cylinders – sudden release of contents	Periodic inspection of all pressurized cylinders by air monitoring team. Proper storage of cylinders in accordance with SOPs.
	Biological hazards	Site personnel have received blood-borne pathogen training during site-specific training. Workers will avoid hazardous plants, snakes, and insects.
	Electrical hazards	No frayed electrical cords will be permitted on site. GFCI devices will be used on all outdoor circuits. Proper lock-out/tag-out procedures will be used when repairing or installing electrical equipment.
Air monitoring	Biological hazards	Site personnel have received blood-borne pathogen training during site-specific training. Workers will avoid hazardous plants, snakes, and insects.
	Slips, trips, and falls	Worker awareness of potential slippery surfaces and tripping hazards plus inspection and policing of debris.
	Cold and heat stress injuries	UXOSO will implement heat stress/cold injury control program.
	Pressurized cylinders – sudden release of contents	Periodic inspection of all pressurized cylinders by air monitoring team. Proper storage of cylinders in accordance with SOPs.
	Biological hazards	Site personnel have received blood-borne pathogen training during site-specific training. Workers will avoid hazardous plants, snakes, and insects.
	Electrical hazards	No frayed electrical cords will be permitted on site. GFCI devices will be used on all outdoor circuits. Proper lock-out/tag-out procedures will be used when repairing or installing electrical equipment.
	Noise	Hearing protection will be worn in hazardous noise areas (85dBA or greater).

Equipment to be used: MINICAMS Monitoring equipment and DAAMS tubes and portable sampling pumps.

Inspection Requirements: All air monitoring equipment will be inspected prior to use by air monitoring team and calibrated, when required. If during inspection or during use, equipment fails to function properly, equipment is to be turned in for repair or replacement. Cylinders will be inspected daily by UXOSO and air monitoring team to ensure proper placement and storage.

Training Requirements: Air monitoring personnel will be current in OSHA training in accordance with 29 CFR 1910.120 (HAZWOPER), and be enrolled in a medical monitoring program with a current occupational physical with physician's certificate in accordance with 29 CFR 1910.120(f).

Approver Signature: Edward Grunwald Date: _____
Ed Grunwald, Project Safety and Health Officer

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ACTIVITY HAZARD ANALYSIS

CHEMICAL WARFARE MATERIEL

ACTIVITY HAZARD ANALYSIS

Activity: CHEMICAL WARFARE MATERIEL

Principal Steps	Potential Safety/Health Hazards:	Recommended Controls
Excavation Equipment Operation	Hazards associated with CWM and chemical agent (CA) exposure	Worker awareness of potential encounters with UXO/CWM. UXO/CWM recognition course. Emergency procedures in the event of a CWM encounter or CA exposure. 40 hour HAZWOPER Course. APR Full-Face Respirator Fit test and donning/doffing training IAW 29CFR 1910.134 Annual physical and physician's statement IAW 29 CFR 1910.120(f) and EM 385-1-1 28.E. Designated personnel wear a CG air monitor and are trained in the alarms.
	Encountering a UXO/CWM	Operator stops and grounds blade, bucket etc. and reports finding to the UXO technician. If identified as CWM, operator evacuates upwind to an area outside of the 1% lethality zone. Operator or UXO technician will notify the Parsons Site Safety Officer and Parsons Project Manager.
	Exposure to a CA release	If there is an exposure to CA the operator immediately dons their mask and evacuates to the personnel decontamination station (PDS) and then to the designated Assembly Point. On-site medical support must be available whenever intrusive operations are being conducted. Operator or UXO technician will notify the Parsons Site Safety Officer and Parsons Project Manager. Coordinate with the installation medical facility and the designated civilian medical facility of the possible types of CA exposure.

Equipment to be used: Drägar PAC III with CG Sensor, APR Full-Face Respirator

Inspection Requirements: Workers will perform a daily inspection of PPE prior to use. PPE will be inspected daily by workers in accordance with the manufacturer's instructions. If during inspection or during use the equipment fails to function properly it is to be immediately turned in for repair/ replacement.

Training Requirements: Operators will be trained in the safe and proper use of PPE. All designated personnel will be current in OSHA training in accordance with 29 CFR 1910.120 (HAZWOPER), 1910.134 and EM 385-1-1, and be enrolled in a medical monitoring program with a current occupational physical with physician's certificate in accordance with 29 CFR 1910.120(f) and EM 385-1-1 28.E.

Approver Signature:_____ Date: _____
Tim Mustard, CIH

ACTIVITY HAZARD ANALYSIS

DAAMS PLACEMENT/RETRIEVAL

ACTIVITY HAZARD ANALYSIS

Activity: DAAMS PLACEMENT/RETRIEVAL

Principal Steps	Potential Safety/Health Hazards:	Recommended Controls
Initial Preparation and Placement of DAAMS Pumps	Contact with chemical agent or other hazardous chemicals	Air monitoring personnel will don the proper PPE commensurate with the chemical hazard. CWM, HTW, and UXO training and safety awareness during site-specific training and refreshed during morning tailgate briefing. Use face shield as appropriate.
	Slips, trip, and falls	Worker awareness of potential slippery surfaces and tripping hazards plus inspection and policing of debris.
	Vehicle traffic in work area	Operation of vehicles in accordance with the SSHP. Be alert when working in areas with heavy traffic. Use ground guide when backing vehicles.
	Biological hazards	Site personnel have received blood-borne pathogen training during site-specific training. Workers will avoid hazardous plants, snakes, and insects.
	Electrical hazards	No frayed electrical cords will be permitted on site. GFCI devices will be used on all outdoor circuits. Proper lock-out/tag-out procedures will be used when repairing or installing electrical equipment.
DAAMS Pump Retrieval	Contact with chemical agent or other hazardous chemicals	Personnel will don the proper PPE commensurate with the chemical hazard. CWM, HTW, and UXO training and safety awareness during site-specific training and refreshed during morning tailgate briefing. Use face shield as appropriate.
	Biological hazards	Site personnel have received blood-borne pathogen training during site-specific training. Workers will avoid hazardous plants, snakes, and insects.
	Slips, trip, and falls	Worker awareness of potential slippery surfaces and tripping hazards plus inspection and policing of debris.
	Cold and heat stress injuries	UXOSO will implement heat stress/cold injury control program.

Equipment to be used: DAAMS tubes and portable sampling pumps.

Inspection Requirements: All air monitoring equipment will be inspected prior to use by air monitoring team and calibrated, when required. If during inspection or during use, equipment fails to function properly, equipment is to be turned in for repair or replacement.

Training Requirements: When applicable, personnel will be current in OSHA training in accordance with 29 CFR 1910.120 (HAZWOPER), and be enrolled in a medical monitoring program with a current occupational physical with physician's certificate in accordance with 29 CFR 1910.120(f).

Approver Signature: Edward Grunwald Date: _____

Ed Grunwald, Project Safety and Health Officer

ACTIVITY HAZARD ANALYSIS

DECONTAMINATION OF ITEMS

ACTIVITY HAZARD ANALYSIS

Activity: DECONTAMINATION OF ITEMS

Principal Steps	Potential Safety/Health Hazards:	Recommended Controls
Process items through decontamination in accordance with SOPs.	Chemical agents	Personnel will don the proper PPE commensurate with the chemical hazard. CWM training and safety awareness. Personnel UXO safety awareness. All items found during the investigation will be assessed by UXO personnel prior to decontamination. If any suspect items not previously assessed are encountered, work will stop to have the items investigated by a trained UXO specialist.
	Slips, trips, and falls	Worker awareness of potential slippery surfaces and tripping hazards plus inspection and policing of debris.
	Cold and heat stress injuries	UXOSO will implement heat stress/cold injury control program.
	Biological hazards	Site personnel have received blood-borne pathogen training during site-specific training. Workers will avoid hazardous plants, snakes, and insects.
	Pressurized cylinders – sudden release of contents	Periodic inspection of all pressurized cylinders by air monitoring team. Proper storage of cylinders in accordance with SOPs.
Remove gross contamination with brush.	Chemical agents	Personnel will don the proper PPE commensurate with the chemical hazard. CWM training and safety awareness. Personnel UXO safety awareness. All items found during the investigation will be assessed by UXO personnel prior to decontamination. If any suspect items not previously assessed are encountered, work will stop to have the items investigated by a trained UXO specialist.
	Cold and heat stress injuries	UXOSO will implement heat stress/cold injury control program.
	Pressurized cylinders – sudden release of contents	Periodic inspection of all pressurized cylinders by air monitoring team. Proper storage of cylinders in accordance with SOPs.
Place in decontamination bucket or rinse with decontamination solution.	Chemical agents	Personnel will don the proper PPE commensurate with the chemical hazard. CWM training and safety awareness. Personnel UXO safety awareness. All items found during the investigation will be assessed by UXO personnel prior to decontamination. If any suspect items not previously assessed are encountered, work will stop to have the items investigated by a trained UXO specialist.
	Cold and heat stress injuries	UXOSO will implement heat stress/cold injury control program.
	Pressurized cylinders – sudden release of contents	Periodic inspection of all pressurized cylinders by air monitoring team. Proper storage of cylinders in accordance with SOPs.

Principal Steps	Potential Safety/Health Hazards:	Recommended Controls
Clean with soap solution.	Chemical agents	Personnel will don the proper PPE commensurate with the chemical hazard. CWM training and safety awareness. Personnel UXO safety awareness. All items found during the investigation will be assessed by UXO personnel prior to decontamination. If any suspect items not previously assessed are encountered, work will stop to have the items investigated by a trained UXO specialist.
	Cold and heat stress injuries	UXOSO will implement heat stress/cold injury control program.
Rinse with water.	Chemical agents	Personnel will don the proper PPE commensurate with the chemical hazard. CWM training and safety awareness. Personnel UXO safety awareness. All items found during the investigation will be assessed by UXO personnel prior to decontamination. If any suspect items not previously assessed are encountered, work will stop to have the items investigated by a trained UXO specialist.
	Cold and heat stress injuries	UXOSO will implement heat stress/cold injury control program.
Double bag and screen for contamination.	Chemical agents	Personnel will don the proper PPE commensurate with the chemical hazard. CWM training and safety awareness. Personnel UXO safety awareness. All items found during the investigation will be assessed by UXO personnel prior to decontamination. If any suspect items not previously assessed are encountered, work will stop to have the items investigated by a trained UXO specialist.
	Cold and heat stress injuries	UXOSO will implement heat stress/cold injury control program.

Equipment to be used: Decontamination buckets, common hand tools, nominal 5% bleach solution, and detergent.

Inspection Requirements: All PPE will be inspected by workers prior to each use.

Training Requirements: When applicable, personnel will be current in OSHA training in accordance with 29 CFR 1910.120 (HAZWOPER), and be enrolled in a medical monitoring program with a current occupational physical with physician's certificate in accordance with 29 CFR 1910.120(f). On-site personnel will be trained in UXO awareness during the site-specific training. UXO Personnel must be certified as EOD-trained and have the required experience for the position being filled (i.e. UXO Tech I, II, or III). All personnel operating heavy equipment will provide proof of competency with the equipment to the UXOSO prior to operating. The forklift operator must be certified as having been trained and evaluated in accordance with 29 CFR 1910.178. UXOSO will provide a review of proper lifting techniques.

Approver Signature: Edward Grunwald Date: _____

Ed Grunwald, Project Safety and Health Officer

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ACTIVITY HAZARD ANALYSIS

DIGITAL GEOPHYSICAL MAPPING

ACTIVITY HAZARD ANALYSIS

Activity: DIGITAL GEOPHYSICAL MAPPING

Principal Steps	Potential Safety/Health Hazards:	Recommended Controls
Gather geophysical data on subsurface anomalies by carrying instruments across the site.	Slips, trips, and falls	Worker awareness of potential slippery surfaces and tripping hazards plus inspection and policing of debris.
	Cold and heat stress injuries	UXOSO will implement heat stress/cold injury control program.
	Biological hazards	Site personnel have received blood-borne pathogen training during site-specific training. Workers will avoid hazardous plants, snakes, and insects.
	Vehicle and heavy equipment traffic in work area	Operation of heavy equipment in accordance with the SSHP. Be alert when working around heavy equipment. Use ground guide when backing vehicles and heavy equipment.
	Back injury	Proper lifting techniques.
UXO personnel will precede the geophysics team where necessary to ensure UXO avoidance.	Slips, trips, and falls	Worker awareness of potential slippery surfaces and tripping hazards plus inspection and policing of debris.
	Cold and heat stress injuries	UXOSO will implement heat stress/cold injury control program.
	Biological hazards	Site personnel have received blood-borne pathogen training during site-specific training. Workers will avoid hazardous plants, snakes, and insects.
	Vehicle and heavy equipment traffic in work area	Operation of heavy equipment in accordance with the SSHP. Be alert when working around heavy equipment. Use ground guide when backing vehicles and heavy equipment.
	Back injury	Proper lifting techniques.

Equipment to be used: Geophysical instruments

Inspection Requirements: An inspection of PPE by workers will be conducted before each use. Equipment will be inspected daily by workers prior to use in accordance with the manufacturer's instructions. If during inspection or during use, equipment fails to function properly, equipment is to be turned in for repair/ replacement. All safety guards designed on equipment will remain in place. If any safety device on equipment is missing, that piece of equipment will be placed out of service until it can be repaired/replaced. The UXOSO will inspect loading locations at least daily.

Training Requirements: Operators will be trained in the safe use of required equipment and in the required personal protective equipment. When applicable, personnel conducting the above operations will be current in OSHA training in accordance with 29 CFR 1910.120 (HAZWOPER), and be enrolled in a medical monitoring program with a current occupational physical with physician's certificate in accordance with 29 CFR 1910.120(f). UXO Personnel must be certified as EOD-trained and must have the necessary experience for the position filled.

Approver Signature: Edward Grunwald Date: _____

Ed Grunwald, Project Safety and Health Officer

ACTIVITY HAZARD ANALYSIS

EMERGENCY RESCUE

ACTIVITY HAZARD ANALYSIS

Activity: EMERGENCY RESCUE

Principal Steps	Potential Safety/Health Hazards:	Recommended Controls
Rescue injured personnel.	Contact with chemical agent or other hazardous chemicals	Rescue personnel will don the proper PPE commensurate with the chemical hazard. CWM, HTW, and UXO training and safety awareness during site specific training and refreshed during morning tailgate briefing. Use face shield as appropriate.
	Slips, trips, and falls	Worker awareness of potential slippery surfaces and tripping hazards plus inspection and policing of debris.
	Cold and heat stress injuries	UXOSO will implement heat stress/cold injury control program.
	Biological hazards	Site personnel have received blood-borne pathogen training during site-specific training. Workers will avoid hazardous plants, snakes, and insects.
	Pressurized cylinders – sudden release of contents	Periodic inspection of all pressurized cylinders. Proper storage of cylinders in accordance with SOPs.
	Back Injury	Rescue personnel will be familiar with proper lifting and extrication techniques

Equipment to be used: Rescue litter and retrieval device.

Inspection Requirements: All rescue equipment will be inspected by workers prior to use IAW the manufacturer's instructions. If during inspection or during use, equipment fails to function properly, equipment is to be replaced. All safety guards designed on equipment will remain in place. If any safety device on equipment is missing, that piece of equipment will be placed out of service until it can be repaired/replaced.

Training Requirements: All rescue personnel will be trained in rescue procedures. Rescue teams will practice rescue operations before the start of initial operations. When applicable, rescue personnel will be current in OSHA training in accordance with 29 CFR 1910.120 (HAZWOPER), and be enrolled in a medical monitoring program with a current occupational physical with physician's certificate in accordance with 29 CFR 1910.120(f). Rescue personnel will be trained in UXO awareness during site-specific training. All personnel will provide proof of competency with the equipment to the UXOSO prior to operating. Before entering a confined space, all personnel will show proof of confined space training to the UXOSO.

Approver Signature: Edward Grunwald Date: _____

Ed Grunwald, Project Safety and Health Officer

ACTIVITY HAZARD ANALYSIS

HEADSPACE SCREENING

ACTIVITY HAZARD ANALYSIS

Activity: HEADSPACE SCREENING

Principal Steps	Potential Safety/Health Hazards:	Recommended Controls
Set up and calibrate air monitoring equipment.	Contact with chemical agent or other hazardous chemicals	Air monitoring personnel will don the proper PPE commensurate with the chemical hazard. CWM, HTW, and UXO training and safety awareness during site-specific training and refreshed during morning tailgate briefing. Use face shield as appropriate.
	Slips, trip, and falls	Worker awareness of potential slippery surfaces and tripping hazards plus inspection and policing of debris.
	Cold and heat stress injuries	UXOSO will implement heat stress/cold injury control program.
	Vehicle and heavy equipment traffic in work area	Operation of heavy equipment in accordance with the SSHP. Be alert when working around heavy equipment. Use ground guide when backing vehicles and heavy equipment.
	Noise	Hearing protection will be worn in hazardous noise areas (85dBA or greater).
	Pressurized cylinders – sudden release of contents	Periodic inspection of all pressurized cylinders by air monitoring team. Proper storage of cylinders in accordance with SOPs.
	Biological hazards	Site personnel have received blood-borne pathogen training during site-specific training. Workers will avoid hazardous plants, snakes, and insects.
	Electrical hazards	No frayed electrical cords will be permitted on site. GFCI devices will be used on all outdoor circuits. Proper lock-out/tag-out procedures will be used when repairing or installing electrical equipment.
Headspace soil, MEC, and scrap items	Contact with chemical agent or other hazardous chemicals	Air monitoring personnel will don the proper PPE commensurate with the chemical hazard. CWM, HTW, and UXO training and safety awareness during site-specific training and refreshed during morning tailgate briefing. Use face shield as appropriate.
	Biological hazards	Site personnel have received blood-borne pathogen training during site-specific training. Workers will avoid hazardous plants, snakes, and insects.
	Slips, trip, and falls	Worker awareness of potential slippery surfaces and tripping hazards plus inspection and policing of debris.
	Cold and heat stress injuries	UXOSO will implement heat stress/cold injury control program.
	Noise	Hearing protection will be worn in hazardous noise areas (85dBA or greater).

Equipment to be used: MINICAMS Monitoring equipment and DAAMS tubes and portable sampling pumps.

Inspection Requirements: All air monitoring equipment will be inspected prior to use by air monitoring team and calibrated, when required. If during inspection or during use, equipment fails to function properly, equipment is to be turned in for repair or replacement. Cylinders will be inspected daily by UXOSO and air monitoring team to ensure proper placement and storage.

Training Requirements: Air monitoring personnel will be current in OSHA training in accordance with 29 CFR 1910.120 (HAZWOPER), and be enrolled in a medical monitoring program with a current occupational physical with physician's certificate in accordance with 29 CFR 1910.120(f).

Approver Signature: Edward Grunwald Date: _____

Ed Grunwald, Project Safety and Health Officer

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ACTIVITY HAZARD ANALYSIS

LAND SURVEYING

ACTIVITY HAZARD ANALYSIS

Activity: LAND SURVEYING

Principal Steps	Potential Safety/Health Hazards:	Recommended Controls
Driving to site Base station set up Surveying points Marking points	Motor Vehicle Accident	Site personnel operating vehicles will possess a current driver's license. Drivers and passengers shall wear seat belts when vehicle is in motion. The use of communication devices by drivers (e.g., cell phones) is prohibited when vehicle is in motion. Operators will be aware of road conditions and hazards, and will obey posted speed limits and practice defensive driving techniques.
	Site Hazardous Material Exposure	Personnel training of potential safety, physical, and chemical hazards will be performed by UXOSO. Appropriate PPE will be worn (safety glasses and gloves as appropriate, leather boots). UXO training and safety awareness shall be conducted during site specific training and refreshed during morning tailgate briefing. Only UXO technicians will handle MEC items. Non-UXO personnel will move to a safe area.
	Heat Stress	A heat stress control program will be implemented by UXOSO.
	Tripping Hazards	Worker shall be aware of potential slippery surfaces and tripping hazards. Potential slip, trip, and fall hazards will be discussed during the daily toolbox meeting.
	Biological Hazard (ticks, bees, mosquitoes, snakes, spiders, etc.)	Personnel shall be aware of potential exposure to biological hazards. Personnel shall wear appropriate clothing (hat, long-sleeve shirt, long pants, gloves, and boots) and insect repellant. Wear thick gloves when clearing plants or debris from work area.
	Motorized/Pedestrian Traffic	Personnel shall exercise caution while working in the vicinity of a street and near vehicular traffic. If traffic control is necessary the Traffic control zone will comply with the requirements of DOTs Manual of Uniform Traffic Control Devices.
	Injury from Material Lifting	Personnel shall be aware of potential physical hazards from carrying and/or pulling heavy geophysical equipment. Care should be taken to adjust all straps and harnesses to maximize comfort for the wearer. Breaks should be taken as often as necessary and survey personnel will take turns operating the geophysical equipment.
	Injury from Hand Tool Operation	Hand tools shall be used in accordance with manufacturer's instructions. Walk with the tip of the prism rod pointed down. Always be aware of overhead power lines. (Contact between an overhead power line and rod may cause electrocution. Power lines near railroad tracks are often low.) Hand and power tools shall be inspected, tested, and determined to be in safe operating condition before use by the operator of the tool. Tools having defects shall be taken out of service until repaired. Operations will be conducted by authorized and trained personnel. Other personnel shall stay away from the operation area. Requirements outlined in EM385-1-1 Section 13 will be observed.

Equipment to be used: Motor Vehicle, Hand tools, GPS Total Station, Hand tools, PPE to include work boots, gloves and eye protection.

Inspection Requirements: PHSO and UXOSO will conduct spot checks of compliance. UXOSO will conduct daily audits of operations. PHSO and UXOSO follow SSHP guidelines. All site personnel report any potential hazards. Daily safety briefings will be conducted on mitigation techniques. Conduct PPE audits. UXOSO to conduct daily site audits for compliance with MUTCD. Daily safety briefings will be conducted. Proper lifting techniques audited. Personnel will inspect tools prior to use. If during inspection or during use, equipment fails to function properly, the equipment shall be turned in for repair/ replacement.

Training Requirements: All Site personnel will be current in their OSHA HAZWOPER training (received 40-hr initial training and attended an 8-hr refresher training within past 12 months) and be enrolled in a medical monitoring program. Additional training (such as first aid/CPR, bloodborne pathogens, respiratory protection, confined space entry, etc.) will be provided as applicable. Personnel will be trained in the safe use of required equipment and in the required PPE. UXO Personnel must be certified as EOD-trained and must be approved for the project by the USAESCH Safety Officer and Contracting Officer. All personnel operating heavy equipment will provide proof of competency with the equipment to the UXOSO prior to operating the equipment. This AHA will be discussed with workers during initial site safety training

Approver Signature: Edward Grunwald Date: _____

Ed Grunwald, Project Safety and Health Officer

Activity Hazard Analysis (AHA)

Activity/Work Task: **MOBILIZATION/DEMOBILIZATION**	Overall Risk Assessment Code (RAC) (Use highest code)	**L**
Project Location:	**Risk Assessment Code (RAC) Matrix**	
Contract Number:		
Date Prepared: August 31, 2009		
Prepared by (Name/Title): Michael E. Short/Ops & Technology Dir.		
Reviewed by (Name/Title): Ed Grunwald, CIH		
Notes: (Field Notes, Review Comments, etc.)		

Severity	**Probability**				
	Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	**E**	**E**	**H**	**H**	**M**
Critical	**E**	**H**	**H**	**M**	**L**
Marginal	**H**	**M**	**M**	**L**	**L**
Negligible	**M**	**L**	**L**	**L**	**L**

Step 1: Review each **"Hazard"** with identified safety **"Controls"** and determine RAC (See above)

"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.

"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible

Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.

RAC Chart
E = Extremely High Risk
H = High Risk
M = Moderate Risk
L = Low Risk

Job Steps	Hazards	Controls	RAC
1. Install/Dismantle: Trailers, Tents, CONEX containers, storage sheds, explosives storage magazines etc.	1a. Slip, trip and fall.	1a. Select a level area for the placement of the item and be aware of the condition of the ground on which you are working. Be certain to place your feet on as firm and solid a surface as possible. If using a ladder ensure that it is properly placed against the structure and that the feet of the ladder are on a solid even surface. Be certain that the ladder meets the requirements of EM 385-1-1, Chapter 24.	**L**
	1b. Pinch hazard from assembly/placement and tie down of trailers, tents, CONEX containers and storage sheds.	1b. Wear leather gloves and place hands on smooth surfaces checking the area on which you are going to place your hands to ensure there are no sharp surfaces.	**L**
	1c. Use of hand and power tools.	1c. Use the proper tools for the specific job being performed and be certain that those around you are not in your swing plane. Be certain that the tools to be used are serviceable and free of slippery surfaces. Hand and power toll use will be IAW EM 385-1-1, Chapter 13.	**L**
	1d. Vehicle and heavy equipment traffic in area.	1d. Be aware of any vehicles or heavy equipment in area and be certain to wear hard hat and orange safety vest when working around heavy equipment. Heavy equipment operator	**L**

		must be currently certified for the piece of equipment he is operating. Establish arm and hand signals or radio communication with the equipment operator and be certain the equipment is grounded and shut off when within the arc of the boom, shovel, etc. Place traffic cones or some other means of warning just outside of the equipments arc to warn others from entering the area. When the heavy equipment is in use the site safety officer must be present to ensure that the operation is run IAW the approved WP, SOP and AHA. Any heavy equipment used must have a back-up alarm, be in good working order and free of oil or hydraulic fluid leaks. In addition cranes or hoisting equipment must be certified IAW EM 385-1-1, Chapter 16.	
	1e. Noise in excess of OSHA standards.	1e. If the heavy equipment used is louder than 85dB (A) then the appropriate hearing attenuation PPE must be worn. This could be ear plugs, ear muffs or both depending on the noise level. The site safety officer will measure the noise level of the equipment and prescribe the applicable noise attenuation PPE to be worn.	**L**
	1f. Lifting hazards.	1f. Ensure that you, and if there is another individual assisting you, both have solid footing, leather work gloves and use the proper lifting technique, bend at the knees keeping your back as straight as possible and lift with your knees, not your back. Ensure you have good visibility in the direction you are carrying an item. Do not attempt to carry anything by yourself in excess of 50 lbs. or any item that blocks your visibility or is cumbersome to carry alone.	**L**
	1g. Biological hazards.	1g. Conduct a reconnaissance of the area to be used for the trailer, CONEX, magazine etc. to ensure there are no biological hazards or endangered flora/fauna species present. The individual conducting the recon must take precautions and be certain that they are wearing a long sleeved shirt and have used the appropriate insect repellent if desired. Any biological hazards encountered will be noted in the log and if possible the site located to a more suitable area.	**L**
		1g. Hazardous Plants PPE for avoidance of hazardous plants (specifically Poison Ivy/Oak and Sumak) will consist of long sleeved shirts and long pants, or coveralls; safety glasses; leather gloves; and head cover such as baseball cap or head scarf. Daily protective controls will consist of:	**L**

		• Field personnel applying a protective barrier cream (such as IvyX) to potentially exposed skin at the beginning of each day, • Use of a protective cover on automobile seats, to be replaced each day, • Field personnel washing with poison ivy/oak oil cleanser (such as Tecnu) (following directions on bottle) at breaks and the end of each field day, or as soon as a rash appears (do not apply to broken skin), • Field personnel changing into clean clothing or removing coveralls and removing automotive seat covers before leaving the site each day, • Any other protective measures deemed appropriate. 1.g Ticks PPE for avoidance of tick bites will consist of long sleeved shirts and long pants, or coveralls; leather gloves; and head cover such as baseball cap or head scarf. Daily protective controls will consist of: • Wearing light colored clothing to easily identify presence of ticks. • Application of a Permethrin/Permanone spray to clothing the day before field work. (Note: this is to be sprayed on **clothing only** and allowed to dry. Never apply directly on skin.) and application of insect repellant containing DEET on exposed skin. • Use of Duct tape to blouse pants and create a protective seal. • Field tick-checks to be performed at breaks throughout the day using the Buddy System. • Daily inspection of entire body to locate attached ticks after removal of clothing. If a tick is imbedded in the skin, tick removal will be performed with narrow headed tweezers available in each field kit. The tick will be grabbed where the mouthparts enter the skin and the tick gently pulled out and then crushed. The bite area and the hands will be cleansed with an antiseptic wipe found in the field kit or soap and water.	**L**
	1h. Cold/Heat Stress.	1h. All site preparation activities must be conducted IAW the approved WP ensuring that appropriate clothing and PPE is	**L**

		worn to assist in the prevention of cold and heat stress injuries. Use the buddy system at all times and have sufficient and appropriate fluids available for the conditions.	
2. Electrical line installation/removal, grounding and connections.	2a. Electrical Shock.	2a. Ensure that the electrical company or equipment company installs and connects any electrical lines. In the event there is an electrical problem that cannot be corrected by merely un-plugging and re-plugging an item or replacing a blown fuse then an electrician will be contacted to correct the problem. All electrical appliances, equipment will have a third prong for proper grounding and all electrical outlets will have three pronged receptacles and meet the requirements of EM 385-1-1, Chapter 11. GFCIs will be used for all outdoor connections and magazines will be grounded and tested IAW EM 1110 -1- 4009 and Parsons SOP.	**L**
	2b. Slip, trip and fall.	2b.. Be certain to place your feet on as firm and solid a surface as possible. If using a ladder ensure that it is properly placed against the structure and that the feet of the ladder are on a solid even surface. Be certain that the ladder meets the requirements of EM 385-1-1, Chapter 24.	**L**
	2c. Pinch hazard from installation and connection of electrical lines.	2c. Wear leather gloves and place hands on smooth surfaces checking the area on which you are going to place your hands to ensure there are no sharp surfaces.	**L**
	2d. Use of hand and power tools.	2d. Use the proper tools for the specific job being performed. Be certain that the tools to be used are serviceable and free of slippery surfaces. Hand and power toll use will be IAW EM 385-1-1, Chapter 13.	**L**
	2e. Vehicle and heavy equipment traffic in area.	2e. Be aware of any vehicles or heavy equipment in area and be certain to wear hard hat and orange safety vest when working around heavy equipment. Be certain that the equipment operator and the site safety officer are aware of your presence.	**L**
	2f. Noise in excess of OSHA standards.	2f. If there is heavy equipment being used in the area of the electrical installation and it is louder than 85dB (A) then the appropriate hearing attenuation PPE must be worn.	**L**
	2g. Lifting hazards.	2g. Ensure that you, and if there is another individual	**L**

		assisting you, both have solid footing, leather work gloves and use the proper lifting technique, bend at the knees keeping your back as straight as possible and lift with your knees, not your back. Ensure you have good visibility in the direction you are carrying an item. Do not attempt to carry anything by yourself in excess of 50 lbs. or any item that blocks your visibility or is cumbersome to carry alone.	
	2h. Biological hazards.	2h. If there are biological hazards in the area that you take precautions and be certain that the electrician is wearing a long sleeved shirt and have used the appropriate insect repellent if desired. Any biological hazards encountered will be noted in the log and if possible the site located to a more suitable area.	**L**
	2i. Cold/Heat Stress.	2i. Electrical connections must be conducted IAW the approved WP ensuring that appropriate clothing and PPE is worn to assist in the prevention of cold and heat stress injuries. Use the buddy system at all times and have sufficient and appropriate fluids available for the conditions.	**L**

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements	
1. Hand and power tools 2. Heavy equipment, if applicable 3. Site vehicles	Qualified Personnel 1. 1st Aid/CPR – UXOSO or site safety officer and one other individual. 2. Site Manager or SUXOS 3. Heavy equipment operator, if applicable 4. Electrician Training 1. Site-specific WP, SOP and AHA 2. OSHA 40 hour and applicable 8 hour 3. Equipment operation 4. Heat/Cold Stress 5. Biological hazards 6. Flora/Fauna endangered/threatened 7. Daily safety and operational briefing 8. Site visitor training	1. Initial (mobilization) – General inspection of assembly area. 2. Daily- Housekeeping of assembly and work areas for debris and hazards. 3. Weekly – 1st Aid/CPR kit(s), fire extinguisher(s), vehicles and equipment. 4. Final (demobilization) – Inspection of the entire area to ensure the site is left in the same or better than when we arrived.	

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ACTIVITY HAZARD ANALYSIS

PERSONNEL DECONTAMINATION STATION

ACTIVITY HAZARD ANALYSIS

Activity: PERSONNEL DECONTAMINATION STATION

Principal Steps	Potential Safety/Health Hazards:	Recommended Controls
Decontaminate personnel exiting from the EZ.	Contact with chemical agent or other hazardous chemicals	Personnel in the PDS will don the proper PPE commensurate with the chemical hazard. CWM, HTW, and UXO training and safety awareness during site specific training and refreshed during morning tailgate briefing. Use face shield as appropriate.
	Slips, trips, and falls	Worker awareness of potential slippery surfaces and tripping hazards plus inspection and policing of debris.
	Cold/heat injuries	UXOSO will implement heat stress/cold injury control program.
	Biological hazards	Site personnel have received blood-borne pathogen training during site-specific training. Workers will avoid hazardous plants, snakes, and insects.
	Pressurized cylinders – sudden release of contents	Periodic inspection of all pressurized cylinders by air monitoring team. Proper storage of cylinders in accordance with SOPs.
Decontaminate tools and items recovered from the excavation.	Contact with chemical agent or other hazardous chemicals	Personnel will don the proper PPE commensurate with the chemical hazard. CWM, HTW, and UXO training and safety awareness during site specific training and refreshed during morning tailgate briefing. Use face shield as appropriate.
	Slips, trips, and falls	Worker awareness of potential slippery surfaces and tripping hazards plus inspection and policing of debris.
	Cold/heat injuries	UXOSO will implement heat stress/cold injury control program.
	Biological hazards	Site personnel have received blood-borne pathogen training during site-specific training. Workers will avoid hazardous plants, snakes, and insects.
	Pressurized cylinders – sudden release of contents	Periodic inspection of all pressurized cylinders by air monitoring team. Proper storage of cylinders in accordance with SOPs.
Support rescue personnel (as required).	Contact with chemical agent or other hazardous chemicals	Personnel will don the proper PPE commensurate with the chemical hazard. CWM, HTW, and UXO training and safety awareness during site specific training and refreshed during morning tailgate briefing. Use face shield as appropriate.
	Slips, trips, and falls	Worker awareness of potential slippery surfaces and tripping hazards plus inspection and policing of debris.
	Cold/heat injuries	UXOSO will implement heat stress/cold injury control program.
	Pressurized cylinders – sudden release of contents	Periodic inspection of all pressurized cylinders by air monitoring team. Proper storage of cylinders in accordance with SOPs.

Principal Steps	Potential Safety/Health Hazards:	Recommended Controls
	Back injury	Proper lifting techniques will be utilized.
	Cold/heat injuries	UXOSO will implement heat stress/cold injury control program.

Equipment to be used: Decon buckets, brushes, nominal 5% bleach solution, detergent, water, and emergency personnel decontamination station within the EZ.

Inspection Requirements: Equipment will be inspected by workers prior to use in accordance with the manufacturer's instructions. If during inspection or during use, equipment fails to function properly, equipment is to be turned in for repair/ replacement. If any safety device on equipment is missing, that piece of equipment will be placed out of service until it can be repaired or replaced. The UXOSO will ensure prior to daily operations that the PDSs are ready for operations.

Training Requirements: All PDS personnel will be trained in the safe use of required equipment and in the required personal protective equipment. UXOSO will provide a review of proper lifting techniques. PDS personnel will be current in OSHA training in accordance with 29 CFR 1910.120 (HAZWOPER), and be enrolled in a medical monitoring program with a current occupational physical with physician's certificate in accordance with 29 CFR 1910.120(f).

Approver Signature: Edward Grunwald Date: _____
Ed Grunwald, Project Safety and Health Officer

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ACTIVITY HAZARD ANALYSIS

SOIL, SEDIMENT, AND WATER SAMPLING

ACTIVITY HAZARD ANALYSIS

Activity: SOIL, SEDIMENT, AND WATER SAMPLING

Principal Steps	Potential Safety/Health Hazards:	Recommended Controls
Setup / Preparation for sampling	Injury from hand tools	The operator will inspect tools prior to use. No damaged equipment will be used until repaired or replaced.
	Slips, trips, and falls	Worker awareness of potential slippery surfaces and tripping hazards plus inspection and policing of debris.
	Cold and heat stress injuries	UXOSO will implement heat stress/cold injury control program.
	Vehicle and heavy equipment traffic in work area	Operation of heavy equipment in accordance with the SSHP and applicable SOPs. Be alert when working around heavy equipment. Ground guide for the backing of vehicles and heavy equipment.
	Noise	Hearing protection will be worn in hazardous noise areas (85dBA or greater).
	Biological hazards	Site personnel that encounter biological hazards will adhere to procedures described in this plan, and take precautions to prevent injuries from biological hazards.
	Contact with chemical agent or other hazardous chemicals	CA and HTW safety awareness will be conducted during site-specific orientation training and reviewed during morning tailgate briefings. Personnel will immediately retreat to an upwind position and notify site management if they encounter suspect chemical agent or other hazardous chemicals
Sample Collection	Contact with chemical agent or other hazardous chemicals	CA and HTW safety awareness will be conducted during site specific orientation training and reviewed during morning tailgate briefings. Personnel will immediately retreat to an upwind position and notify site management if they encounter suspect chemical agent or other hazardous chemicals
	Slips, trips, and falls	Worker awareness of potential slippery surfaces and tripping hazards plus inspection and policing of debris.
	Cold and heat stress injuries	UXOSO will implement heat stress/cold injury control program.
	Injury from hand tools	The tool users will inspect the tools that they will use. No damaged equipment will be used until repaired or replaced.
	Biological hazards	Site personnel that encounter biological hazards will adhere to procedures described in this plan, and take precautions to prevent injuries from biological hazards.
	Buried utilities	The Field team Leader will contact a local utility location service and have the utility locations marked prior to excavation.
	Back Injury	The workers will be instructed in proper shoveling and lifting techniques.

Equipment to be used: Vehicles, and hand tools.

Inspection Requirements: An inspection of PPE by workers will be conducted before each use. Equipment and tools will be inspected by workers daily prior to use in accordance with the manufacturer's instructions. If during inspection or during use, equipment fails to function properly, equipment is to be turned in for repair/ replacement. All safety guards designed on equipment will remain in place. If any safety device on equipment is missing, that piece of equipment will be placed out of service until it can be repaired/replaced.

Training Requirements: Site personnel will receive site orientation training from the UXOSO. Additionally, personnel will be current in OSHA training in accordance with 29 CFR 1910.120 (HAZWOPER), and be enrolled in a medical monitoring program with a current occupational physical with physician's certificate in accordance with 29 CFR 1910.120(f). Operators will be trained in the safe use of required equipment and in the required personal protective equipment.

Approver Signature: Edward Grunwald Date: _____

Ed Grunwald, Project Safety and Health Officer

Activity Hazard Analysis (AHA)

Activity/Work Task: **VEGETATION REMOVAL**	Overall Risk Assessment Code (RAC) (Use highest code)	**M**
Project Location:	**Risk Assessment Code (RAC) Matrix**	
Contract Number:		
Date Prepared: September 4, 2009		
Prepared by (Name/Title): Michael E. Short/Technical &Ops. Dir		
Reviewed by (Name/Title):		

Severity	**Probability**				
	Frequent	Likely	Occasional	Seldom	Unlikely
Catastrophic	**E**	**E**	**H**	**H**	**M**
Critical	**E**	**H**	**H**	**M**	**L**
Marginal	**H**	**M**	**M**	**L**	**L**
Negligible	**M**	**L**	**L**	**L**	**L**

Notes: (Field Notes, Review Comments, etc.)

Step 1: Review each **"Hazard"** with identified safety **"Controls"** and determine RAC (See above)

"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.

"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible

Step 2: Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.

RAC Chart
E = Extremely High Risk
H = High Risk
M = Moderate Risk
L = Low Risk

Job Steps	Hazards	Controls	RAC
1. Pre-Vegetation Removal UXO Survey	1a. Slips, trips and falls	1a. Ensure that you are thoroughly inspecting the ground in front of you for possible wet or muddy spots, holes, vines rocks etc. that could cause you to slip, trip or fall.	**L**
	1b. Presence of UXO	1b. Inspect the area to be cleared of vegetation for the presence of UXO using a magnetometer to assist in finding items in brush and dense vegetation. If UXO is encountered and it is not acceptable to move, it will be marked with crossed pin flags and dealt with IAW the approved WP. If the item is acceptable to move, it will be relocated to an area outside of the area to be cleared and reported IAW the approved WP.	**M**
	1c. Biological hazards	1c. Hazardous Plants PPE for avoidance of hazardous plants (specifically Poison Ivy/Oak and Sumak) will consist of long sleeved shirts and long pants, or coveralls; safety glasses; leather gloves; and head cover such as baseball cap or head scarf. Daily protective controls will consist of: • Field personnel applying a protective barrier cream (such as IvyX) to potentially exposed skin at the beginning of each day,	**L**

		• Use of a protective cover on automobile seats, to be replaced each day, • Field personnel washing with poison ivy/oak oil cleanser (such as Tecnu) (following directions on bottle) at breaks and the end of each field day, or as soon as a rash appears (do not apply to broken skin), • Field personnel changing into clean clothing or removing coveralls and removing automotive seat covers before leaving the site each day, • Any other protective measures deemed appropriate. 1.c Ticks PPE for avoidance of tick bites will consist of long sleeved shirts and long pants, or coveralls; leather gloves; and head cover such as baseball cap or head scarf. Daily protective controls will consist of: • Wearing light colored clothing to easily identify presence of ticks. • Application of a Permethrin/Permanone spray to clothing the day before field work. (Note: this is to be sprayed on **clothing only** and allowed to dry. Never apply directly on skin.) and application of insect repellant containing DEET on exposed skin. • Use of Duct tape to blouse pants and create a protective seal. • Field tick-checks to be performed at breaks throughout the day using the Buddy System. • Daily inspection of entire body to locate attached ticks after removal of clothing. If a tick is imbedded in the skin, tick removal will be performed with narrow headed tweezers available in each field kit. The tick will be grabbed where the mouthparts enter the skin and the tick gently pulled out and then crushed. The bite area and the hands will be cleansed with an antiseptic wipe found in the field kit or soap and water.	**L**
	1d. Heat and Cold Stress	1d. All site preparation activities must be conducted IAW the approved WP ensuring that appropriate clothing and PPE is worn to assist in the prevention of cold and heat stress injuries. Use the buddy system at all times and have sufficient and appropriate fluids available for the conditions.	**L**

2. Manual Vegetation Removal	2a. Slip, trip and falls	2a. Ensure that you are thoroughly inspecting the ground in front of you for possible wet or muddy spots, holes, vines rocks etc. that could cause you to slip, trip or fall. Ensure that you have solid footing and are not in an awkward position when operating/using hand and power tools.	**L**
	2b. Power tool operation	2b. When operating power tools such as weed eaters, chainsaws etc. they will be handled, operated and maintained IAW the manufactures instructions, the approved WP and any applicable SOPs. The power tool will be inspected prior to use to ensure that all of the hand and safety guards are in place and that the chain, if present, is properly tightened and that the tool is otherwise in good working order. Depending on the power tool PPE will vary and it too must be serviceable, operable and free of any defect. PPE will be worn IAW the approved WP and inspected by the user prior to donning.	**L**
	2c. Noise in excess of OSHA standards	2c. If the power tools used are louder than 85dB (A) then the appropriate hearing attenuation PPE must be worn. This could be ear plugs, ear muffs or both depending on the noise level. The site safety officer will measure the noise level of the equipment and prescribe the applicable noise attenuation PPE to be worn.	**L**
	2d. Biological hazards	2d. The same as 1c. above.	**L**
	2e. The presence of UXO	2e. The same as 1b above.	**L**
	2f. Heat and Cold Stress	2f. The same as 1d.	**L**
3. Mechanical Vegetation Removal	3a. Heavy equipment in the area	3a. Be aware of any heavy equipment in area and be certain to wear hard hat, safety glasses and orange safety vest when working around heavy equipment. Heavy equipment operator must be currently certified for the piece of equipment he is operating. Establish arm and hand signals or radio communication with the equipment operator and be certain the equipment is grounded and shut off when within the arc of the shredder, if applicable. When the heavy equipment is in use a safety UXO technician observer must be present to ensure that the operation is run IAW the approved WP, SOP and AHA. Any heavy equipment used must have a back-up alarm, be in good working order and free of oil or hydraulic fluid leaks. Depending on the type of vegetation removal equipment being used it may be necessary to establish a safety area to ensure no one is hit with flying	**L**

		debris from the blades.	
	3b. Noise in excess of OSHA standards	3b. More than likely the vegetation equipment used will be louder than 85dB (A) then the appropriate hearing attenuation PPE must be worn. This could be ear plugs, ear muffs or both depending on the noise level. The site safety officer will measure the noise level of the equipment and prescribe the applicable noise attenuation PPE to be worn by the operator and the personnel within close proximity to the equipment.	**L**
	3c. Presence of UXO	3c. The operator must be observant to the possible presence of UXO and if encountered stop the equipment and proceed IAW the approved WP.	**L**
	3d. Heat and Cold Stress	3d. The same as 1d.	**L**

Equipment to be Used	Training Requirements/Competent or Qualified Personnel name(s)	Inspection Requirements
1. Hand and power vegetation removal equipment. 2. Mechanical vegetation removal equipment 3. Site vehicles 4. Magnetometers 5. Radios	Qualified Personnel 1. 1st Aid/CPR – UXOSO or site safety officer and one other individual. 2. Site Manager or SUXOS 3. Heavy equipment operator, if Applicable Training 1. Site-specific WP, SOP and AHA 2. OSHA 40 hour and applicable 8 hour 3. Equipment operation 4. Heat/Cold Stress 5. Biological hazards 6. Flora/Fauna endangered/threatened 7. Daily safety and operational briefing 8. Site visitor training	1. Daily- Housekeeping of assembly and work areas for debris and hazards. 2. Daily - Pre-operation checks of equipment. 3. Weekly – 1st Aid/CPR kit(s), fire extinguisher(s), vehicles and equipment.

ATTACHMENT 3
PARSONS SAFETY STATISTICS

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OSHA Form 300A

Year 2008

U.S. Department of Labor

Occupational Safety and Health Administration

Form approved OMB no. 1218-0176

Summary of Work-Related Injuries and Illnesses

All establishments covered by Part 1904 must complete this Summary page, even if no injuries or illnesses occurred during the year. Remember to review the Log to verify that the entries are complete and accurate before completing this summary.

☐

Using the Log, count the individual entries you made for each category. Then write the totals below, making sure you've added the entries from every page of the log. If you had no cases write "0."

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

Number of Cases

Total number of deaths	Total number of cases with days away from work	Total number of cases with job transfer or restriction	Total number of other recordable cases
0	2	9	11
(G)	(H)	(I)	(J)

Number of Days

Total number of days away from work	Total number of days of job transfer or restriction
127	196
(K)	(L)

Injury and Illness Types

Total number of ...

(M)

(1) Injury	20	(4) Poisoning	0
(2) Skin Disorder	0	(5) HearingLoss	0
(3) Respiratory Condition	0	(6) All other illnesses	0

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

Public reporting burden for this collection of information is estimated to average 50 minutes per response, including time to review the instruction, search and gather the data needed, and complete and review the collection of information. Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number. If you have any comments about these estimates or any aspects of this data collection, contact: US Department of Labor, OSHA Office of Statistics, Room N-3644, 200 Constitution Ave, NW, Washington, DC 20210. Do not send the completed forms to this

Establishment information

Your establishment name PARSONS INFRASTRUCTURE & TECHNOLOGY

Sreet 100 W. WALNUT

City PASADENA State CA Zip

Industry description (e.g., Manufacture of motor truck trailers)

ENG. & CONSTRUCTION

Standard Industrial Classification (SIC), if known (e.g., SIC 3715)

OR

North American Industrial Classification (NAICS), if known (e.g., 715)

2 3 7 9

Employment information

Annual average number of employees 3000

Total hours worked by all employees last year 7,120,756

Sign here

Knowingly falsifying this document may result in a fine.

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

Thomas L. Roell — Company executive

President — Title

626-440-3255 — Phone

1/28/09 — Date

Parsons

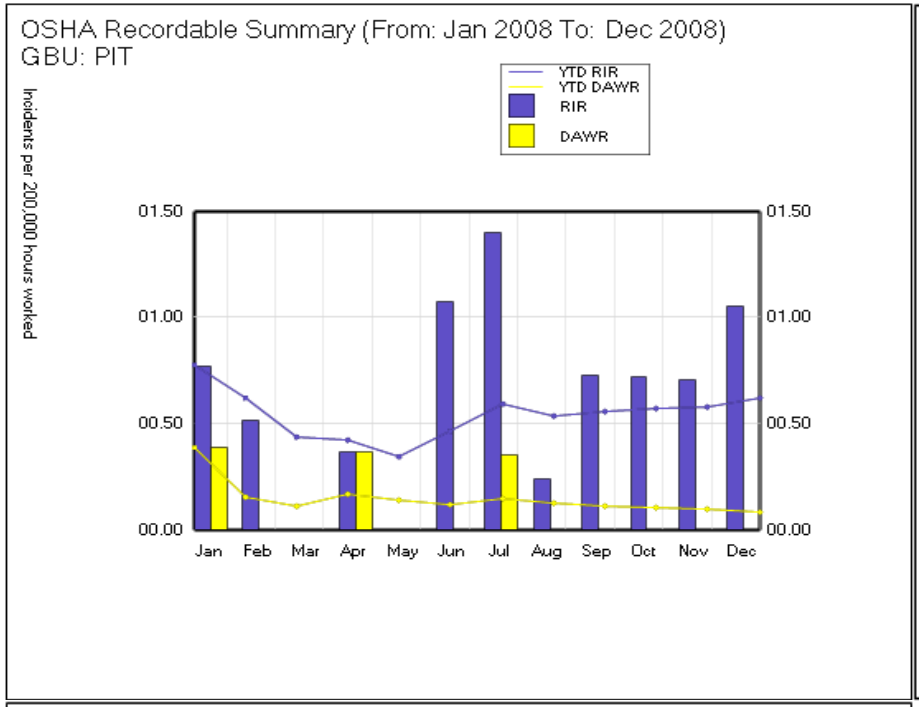
Parsons- Infrastructure & Technology

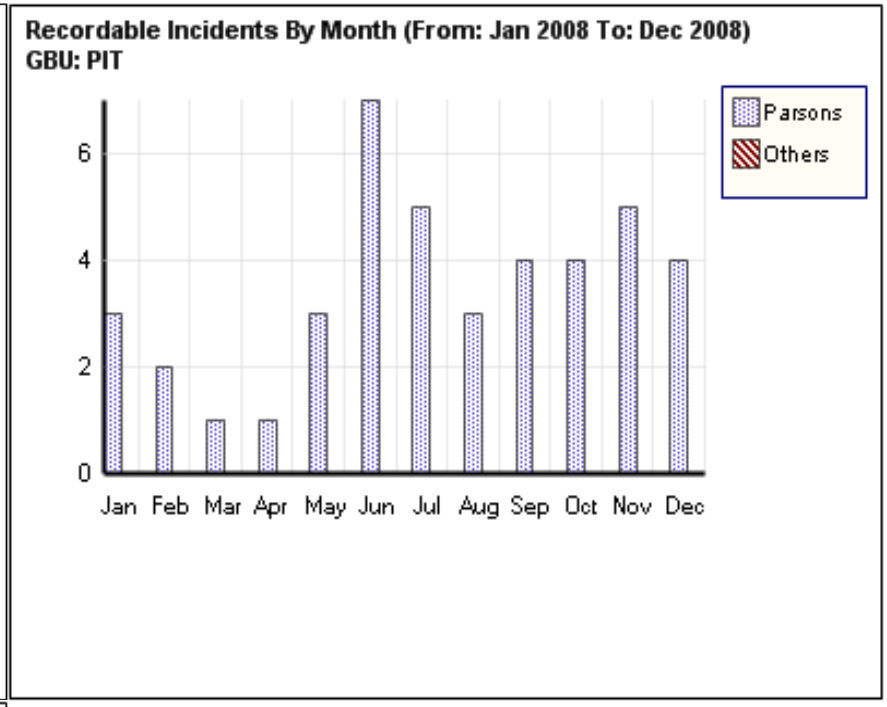
Safety Statistic Summary 2000-2008

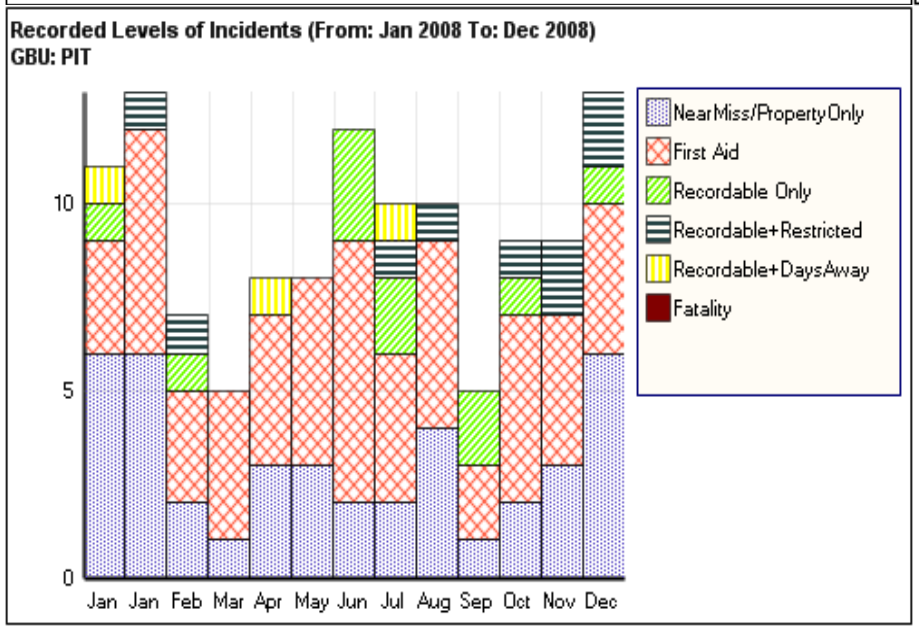
Year	Man Hours	# Rec. Injuries	Recordable Incident Rate	# Lost work day cases	Lost Work Day Rate	DART	EMR	HOME STATE EMR
2000	10,375,814	54	1.04	27	.52	.53	.66	.48
2001	8,712,298	45	1.03	21	.48	1.07	.55	.46
2002	9,577,166	60	1.25	20	.41	.64	.67	.50
2003	6,796,078	66	1.94	25	.73	1.03	.87	.55
2004	6,242,447	39	1.25	10	.32	.42	.98	.51
2005	7,291,127	14	0.38	3	.08	.16	1.11	.51
2006	8,516,532	23	0.54	4	.09	.16	.99	.51
2007	7,270,734	17	0.34	3	0.08	0	.78	.51
2008	7,120,756	22	0.62	2	0.06	0.7	0.64	0.46

Workers Comp. Incurred Totals as of Dec. 31 each year

2003 claims reported to AIG, PIT only, valued 12/31/03:	984,116.03
2004 claims reported to AIG, PIT only, valued 12/31/04:	353,678.11
2005 claims reported to AIG, PIT only, valued 12/31/05:	300,886.98
2006 claims reported to AIG, PIT only, valued 11/1/06:	126,839.44
2007 claims reported to AIG, PIT only, valued 11/1/06:	154,652.00


OSHA Recordable Summary (From: Jan 2008 To: Dec 2008)
GBU: PIT
YTD RIR
YTD DAWR
RIR
DAWR
Incidents per 200,000 hours worked
01.50
01.00
00.50
00.00
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec


Recordable Incidents By Month (From: Jan 2008 To: Dec 2008)
GBU: PIT
Parsons
Others
6
4
2
0
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec


Recorded Levels of Incidents (From: Jan 2008 To: Dec 2008)
GBU: PIT
NearMiss/PropertyOnly
First Aid
Recordable Only
Recordable+Restricted
Recordable+DaysAway
Fatality
10
5
0
Jan Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

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APPENDIX C
SITE-SPECIFIC SAMPLING AND ANALYSIS PLAN

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APPENDIX C
SITE-SPECIFIC SAMPLING AND ANALYSIS PLAN

C.1 INTRODUCTION

C.1.1. The United States Army Corps of Engineers (USACE) Military Munitions Center of Expertise (MM CX) has prepared the Final Programmatic Sampling and Analysis Plan (PSAP) consisting of the Field Sampling Plan (FSP) and the Quality Assurance Project Plan (QAPP) for the Military Munitions Response Program (MMRP) Site Inspections (SIs) of MMRP eligible sites at various Formerly Used Defense Sites (FUDS) across the United States (U.S.) in September 2005. This Site-Specific Sampling and Analysis Plan (SS-SAP) consists of a Site-Specific Field Sampling Plan (SS-FSP) and a Site-Specific Quality Assurance Project Plan (SS-QAPP). These plans provide the site-specific information needed to serve as addendums to the PSAP.

C.1.2. This SS-SAP was developed to describe Parsons' specific activities and procedures to be conducted during the CWM SI at Schilling AFB, Salina, Kansas, under contract No. W912DY-04-D-0005, Delivery Order 0011. This Addendum augments the Final PSAP, documenting Parsons' specific variances from the Final PSAP. This SS-SAP is not meant to be a stand alone document and should be used in conjunction with the Final PSAP, as well as the Site-Specific WP prepared for this site. Only those tables, sections of tables, of figures modified from the PSAP or newly generated are included in this SS-SAP Addendum. The naming convention for the tables/figures mirrors the PSAP with "SS-" added if the PSAP table was modified. Newly generated tables/figures are named sequentially from the last table/figure in the PSAP to avoid duplication of table/figure names.

SITE-SPECIFIC FIELD SAMPLING AND ANALYSIS PLAN

C.2 SITE-SPECIFIC ORGANIZATION AND RESPONSIBILITIES

Table C.1 shows the site-specific organization for the Schilling AFB SI project. Descriptions of the organizational responsibilities are provided in the PWP.

Table C.1
Site-Specific Organization

Organization	Position	Name & Address	Phone
CENWK	Project Manager	Kurt Baer, 601 E 12th St, Kansas City, MO 64106	(816) 389-3922
USAESCH	Project Manager	Paula Henderson 4280 University Square, Huntsville, AL 35807	(256) 895-1269
USAESCH	Project Co-Manager	Lindsey Miller 4280 University Square, Huntsville, AL 35807	(256) 895-1297
USAESCH	Chemist	Monique Nixon 4280 University Square, Huntsville, AL 35807	(256) 895-1491
Parsons	CWM SI, Project Manager	Kimberly Vaughn 800 Center Park Drive Austin, TX 78754	(512)719-6816
Parsons	Schilling AFB Task Manager	Chris tenBraak 1700 Broadway, Denver, CO 80290	(303)-764-1923
Parsons	CWM SI, Project Chemist	Tammy Chang 8000 Centre Park Drive, Suite 200, Austin, TX 78754	(512)-719-6092
Parsons	CWM SI, Project IT Staff, Electronic Deliverables	Pam Ford 8000 Centre Park Drive, Suite 200, Austin, TX 78754	(512)-719-6805
Parsons	CWM SI QA Manager	Norman Hilmar 1700 Broadway, Denver, CO 80290	(303)-764-8806
Parsons	CWM SI, Subcontracts Specialist	David O'Keefe 4890 University Square, Huntsville, AL 35816	(256)-217-2524
One Stop Environmental, LLC	Program Manager	Sarah McGraw 990 Explorer Blvd., Suite D Huntsville, AL 35806	(256) 513-6332, ext. 821
GEOMET Technologies	Director, Chemical Defense Laboratory	Marc Roberts 20251 Century Boulevard, Suite #300 Germantown MD 20874	(301) 417-9605, ext. 22
CBRNE Analytical and Remediation Activity (CARA)	CARA RRW Program Manager	Marvin Hubanks Pine Bluff Arsenal Pine Bluff, AR 71602-9500	(870) 540-2301

C.3 SITE-SPECIFIC SCOPE AND OBJECTIVES

C.3.1. The site-specific objectives are outlined in Chapter 3 of the SS-WP.

C.3.2. For CA and ABPs, target compounds include mustard and mustard breakdown products (1,4-dithiane, 1,4-thioxane) and Lewisite and the constituents of Lewisite (2-chlorovinyl arsenious acid (CVAA), and 2-chlorovinyl arsenious oxide (CVAO or Lewisite oxide)). Mustard breakdown product thiodiglycol (TDG) will also be analyzed only if 1,4-dithiane, 1,4-thioxane, or mustard is detected. Screening criteria for Human Health and laboratory reporting limits for CA/ABPs in soil are shown in Table C.2 for reference. Reporting limits for CA/ABPs are also included within the One Stop Environmental, LLC (OSE) SAP (Appendix D).

Table C.2
Screening Criteria and Reporting Limits for Chemical Agents and Agents Breakdown Products

Analyte	**Screening Criteria for Human Health** Soil (µg/kg)	**Laboratory Reporting Limits** Soil (µg/kg)
Mustard	10*	100
1,4,-Dithiane	610,000**	100
1,4,-Thioxane	610,000**	100
Lewisite	300*	100
CVAA	300*	100
CVAO	300*	100
Thiodiglycol	24,000,000***	5,000

CVAA = 2-chlorovinyl arsenous acid, CVAO = 2-chlorovinyl arsenous oxide
*USACHPPM/ORNL HBESL for CA
**EPA residential screening level
***MRSPP Guidance Document

C.4. NON-MEASUREMENT DATA ACQUISITION

For the Schilling AFB CWM SI project, non-measurement data such as climate, geology and soils, hydrogeology, local habitats, and threatened and endangered species are provided in Chapter 4 of the WP.

C.5. FIELD ACTIVITIES

The purpose of the field activities for this SI is to determine the presence or absence of CA/ABPs at the investigation area.

C5.2. Soil Sampling

Soil samples will be comprised of grab samples from 10 pre-determined locations, plus 10 discretionary locations to be identified by the sampling team. The samples will be collected from a depth of between 12-18 inches. This depth will be attained using a hand auger and/or shovel.

C5.2.1 Sampling Methods for Soil

The following procedures will be used for collecting soil samples.

1. 10 pre-determined sample locations will be marked according to Chapter 3 (Figure 3.2) of the Work Plan. The sampling team will also select 10 discretionary sample locations based on field observations.
2. Before collecting a sample, the a Technician will use a Schonstedt magnetic locator (or equivalent) to confirm the selected sample location is free of surface and subsurface ferrous debris. If the selected location is not clear of metallic debris (based on audible signals from the instrument) an alternate sample location will be selected near the original location. This process will be conducted iteratively until the Technician can deem the location safe for collecting the sample.
3. The actual dig will be conducted with a hand auger to a depth of 12-18 inches.
4. A new pair of clean disposable latex or nitrile gloves will be donned at each sampling location.
5. Samples will be collected by using a decontaminated stainless steel spoon or other suitable disposable scoop and will be placed into a disposable plastic bowl.
6. After a sufficient sample volume has been collected into the bowl the sample will be homogenized using the quartering method described in the PSAP and then placed into the appropriate sample containers.
7. After the sample containers are filled, the caps will be placed on the containers. As soon as field team returns to the vehicle samples will be placed on ice.
8. One split from the samples will be screened onsite for chemical agent by CARA (procedures outlined in Air Monitoring Plan Appendix D) prior to a second split being shipped to the GEOMET off-site laboratory for low-level CA/ABP analysis.

9. Holes where samples were collected can be backfilled.

C5.5. Sample Containers and Preservation Techniques

Sample collected for the field activities at the former Schilling AFB will be collected following the containers, preservation techniques, and holding time suggestions presented in Table C.3. GEOMET will provide pre-cleaned and certified sample containers.

Table C.3 –Sample Containers, Preservatives, and Holding Times for Soils

Parameter	Sample Container	Preservative	Holding Time
CA/ABPs (soil)	1 4 oz. wide-mouth amber glass w/ Teflon-lined cap	Cool to 4ºC	No holding time*

*No holding times for solid samples, email from Marc P. Roberts, 1/18/2010

C5.6 Field QA/QC Sample Requirements

QA/QC samples will be collected and analyzed in accordance with the PSAP, PSAP Addendum and OST SAP (Appendix D)

C5.7 Decontamination Procedures

Decontamination procedures will be conducted in accordance with the PSAP with the following additions:

C5.7.1 Auger buckets, extension rods, or any other equipment used for collected soil samples should be thoroughly washed with soap (e.g., liquinox®, aquanox®) and water (tap water from a municipal supply is acceptable), and scrubbed with a brush or scrub pad to remove any particulate matter or surface film. If there were any detections of CA through air monitoring or headspacing of samples, equipment will also need to be decontaminated with a 5% bleach solution. Equipment should be rinsed thoroughly using warm water and then analyte-free water. The equipment should then be allowed to dry. Once equipment is dry, it will be wrapped in one layer of aluminum foil.

C5.7.2 Preliminary inspection and cleaning of hand augers used for sampling should include the following:

- Augers which have excessive rust, hard or caked mater, etc. which can not be removed by steam cleaning or wire brushing will not be used.

C5.7.3 Items that cannot be cleaned utilizing these methods are not appropriate and should be discarded.

C.6. FIELD OPERATIONS DOCUMENTATION

C6.1 Daily Quality Control Reports (DQCRs)

DQCRs will be prepared and submitted in accordance with the PSAP. The submissions will be separate from the Site Manager's Daily Report and will be the

responsibility of the sample coordinator or other person appointed by the site manager. In addition, signed COCs related to the shipped samples will be submitted upon sample delivery to the lab. These documents will be submitted initially to the project chemist, who will review the information and send the finalized version to the appropriate USACE personnel as described in the PSAP.

C6.2 Field Logbook

Field Logbooks will be maintained in accordance with the PSAP and PSAP Addendum.

C6.3 Photographic Records

Photographic data and records will be collected and maintained in accordance with the PSAP and PSAP Addendum.

C6.4 Sample Documentation

C6.4.1 Sample Numbering

Samples will be numbered in accordance with the PSAP and PSAP Addendum. For the CWM SI at the Schilling AFB, the sample ID will be designated as follows:

Site Name – Sampling Location – Sample Type – Sample Depth – Sample Number

Sample location abbreviations will be as follows:

Schilling CWM– SC

The site name will be abbreviated S-AFB.

Additional identifiers for QC samples and exceptions to the PSAP are as follows:

FD	This identifier for a field duplicate will not be used – instead a discrete sample number will be prescribed to any field duplicates in a manner that the laboratory will not know that it is a field duplicate.
MS/MSD	This identifier for a matrix spike and matrix spike duplicate will not be used in a sample number. As per the PSAP Addendum, the parent sample used for the MS/MSD analysis will be identified on the COC by writing “MS/MSD” in the Comments section of the COC for the parent sample.
EB	Added to any sample indicates the sample is an equipment blank.

C6.4.2 Sample Labels

Sample labels will be prepared in accordance with the PSAP

C6.4.3 Chain-of-Custody Records

COCs will be prepared in accordance with the PSAP

C6.5 Documentation Procedures / Data Management and Retention

Documentation and Data Management Retention will be in accordance with the PSAP.

C.7. SAMPLE HANDLING

Upon collection, all samples will be handled in accordance with the PSAP and PSAP Addendum.

C7.1 Sample Packaging

Samples will be packaged in accordance with the PSAP.

C7.2 Sample Shipping

C7.2.1. After the sample has been headspaced and found to be non-detect of CA/ABPs, samples will be sent to GEOMET Laboratories:

GEOMET Technologies
20251 Century Boulevard, Suite #300
Germantown MD 20874
Attn: Marc Roberts

C7.2.2 If the sample has been found to detect CA/ABPs exceeding the Airborne Exposure Limit (AEL) it will not leave the project site for additional analytical screening.

C.8. INVESTIGATION DERIVED WASTE

C8.1 PPE (e.g. gloves) will remain consolidated from regular waste and will be headspaced for CA by the onsite laboratory conducting air monitoring. If the headspace samples from the PPE are clear of CA, the PPE will be disposed of as non-regulated waste. If decontamination water is generated during field activities and it is not suspected to contain CA or HTW contamination (i.e., no CAIS encountered and no evidence of contamination), it will be re-applied directly to the ground surface and allowed to infiltrate the ground at the site. If CWM/CAIS is suspected and/or CA is detected during the day's activities, IDW will be handled in accordance with the PSAP and the procedures provided in Chapter 3 of the PWP.

C8.2 If data results indicate headspace screening results exceeding the AEL the USAESCH On-Site Safety Representative will be notified.

C.9. FIELD ASSESSMENT – THREE-PHASE INSPECTION PROCEDURES

Parsons will follow the QA/Three-Phase Inspection procedures provided in the PSAP with the note that the Chemical Quality Control Officer may send a designated representative to perform the inspections.

C.10. NONCONFORMANCE – CORRECTIVE ACTION

Parsons will follow the Nonconformance/Corrective Action procedures provided in the PSAP

SITE-SPECIFIC QUALITY ASSURANCE PROJECT PLAN

C.11 SITE-SPECIFIC PROJECT ORGANIZATION AND RESPONSIBILITIES

The project organization for Parsons is presented in Section 2 of this SS-SAP, as well as in Chapter 2 of the PWP.

C.12 DATA ASSESSMENT ORGANIZATION AND RESPONSIBILITIES

C.12.1 Laboratory

The GEOMET Laboratory and Monitoring Quality Control Plan has been referenced in the OSE SAP (Appendix D).

C.12.2 Contractor

The Project Chemist will be Tammy Chang located in the Parsons, Austin, Texas office. Ms. Chang will perform or oversee all data validation of the project data. Ms. Pam Ford in the Parsons Austin, Texas office will be responsible for all electronic data deliverable assessment. The responsibilities for data assessment are included in the PSAP. Ms. Chang and Ms. Ford will report all findings to the Project PM and/or Task Manager.

C.12.3 USACE

All of the team member's roles are presented in the PSAP. The USAESCH Chemist will be Monique Nixon.

C.13. DATA QUALITY OBJECTIVES

C.13.1. The Data Quality Objectives for the CWM SI program and the former Schilling AFB are identified in Chapter 3 of the SS-WP. The TPP process was used to identify the approach and the objectives for each area of interest. The site-specific DQOs are documented in the TPP Memorandum (Appendix E).

C.14. SAMPLE RECEIPT, HANDLING, CUSTODY, AND HOLDING TIME REQUIREMENTS

Parsons will follow all Sample Receipt, Handling, Custody, and Holding Time Requirements provided in PSAP when applicable and GEOMET CDLD – SOP#38 and SOP#44 (Appendix D).

C.15. ANALYTICAL PROCEDURES

The analytical procedures used by GEOMET will follow the methods specified in the GEOMET CDLD – SOP#38 and SOP#44 (Appendix D).

C.15.1 Preventative Maintenance

Parsons will follow all preventative maintenance procedures provided in the PSAP. GEOMET will follow the methods specified in GEOMET CDLD – SOP#38 and SOP#44 (Appendix D).

C.15.2 Calibration Procedures and Frequency

Parsons will follow all calibration procedures and frequency requirements provided in the PSAP. GEOMET will follow the methods specified in GEOMET CDLD – SOP#38 and SOP#44 (Appendix D).

C.15.3 Laboratory QC Procedures

GEOMET will follow the methods specified in GEOMET CDLD – SOP#38 and SOP#44 (Appendix D).

C.15.4 Performance and System Audits

Parsons will follow the Performance and System Audit guidelines provided in the PSAP. GEOMET will follow the methods specified in GEOMET CDLD – SOP#38 and SOP#44 (Appendix D).

C.15.5 Nonconformance/Corrective Actions

Parsons will follow the Nonconformance/Corrective Action procedures provided in the PSAP with one modification noted as follows. The laboratory QA Manager, or designee, will be responsible for initiating laboratory corrective action within 48 hours of the time it was noted. GEOMET will follow the methods specified in GEOMET CDLD – SOP#38 and SOP#44 (Appendix D).

C.15.6 Laboratory Variances

Since DoD QSM version 4.1 does not cover chemical agent the laboratory will follow GEOMET CDLD – SOP#38 and SOP#44 (Appendix D).

C.16 DATA REDUCTION/CALCULATION OF DATA QUALITY INDICATORS

Parsons will follow the Data Reduction/Calculation of Data Quality Indicator procedures provided in the PSAP. GEOMET will follow the methods specified in GEOMET CDLD – SOP#38 and SOP#44 (Appendix D).

C.17 LABORATORY OPERATIONS DOCUMENTATION

GEOMET will follow the methods specified in GEOMET CDLD – SOP#38 and SOP#44 (Appendix D).

C.18 DATA ASSESSMENT PROCEDURES

Parsons will follow the Data Assessment procedures provided in the PSAP. GEOMET will follow the methods specified in GEOMET will follow the methods specified in GEOMET CDLD – SOP#38 and SOP#44 (Appendix D).

APPENDIX D
CBRNE ANALYTICAL AND REMEDIATION ACTIVITY AIR MONITORING PLAN
&
ONE STOP ENVIRONMENTAL, LLC SAMPLING AND ANALYSIS PLAN

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Air Monitoring Plan

FOR

Air Monitoring of Agents Lewisite, (L), Mustard (H), Chloropicrin (PS) and Phosgene (CG) Schilling Air Base, Salina, Kansas

Prepared for:

The U. S. Army

Corp of Engineers, Huntsville, AL District

Prepared by:

20th Support Command

CBRNE Analytical and Remediation Activity

Remediation and Response West

Pine Bluff Arsenal

Pine Bluff, AR

December 2009 **Revision 1**

Approval Page

Prepared By	Marvin Hubanks	CARA RRW Program Manager
Reviewed By	Mark Fonti	Supervisory Physical Science Tech
Reviewed By	Dalys Talley	Chief CARA Operations
Reviewed By	Major Michael Ingram	CARA Laboratory Manager
Reviewed By	Luc Desilets	CARA Safety
Approved By	Charlene Jensen	Director CARA
Approved By	Lindsey Miller	Corp of Engineers Project Manager

For

1 DEC 09

4 Dec 2009

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Air Monitoring Overview

1-1 General Monitoring Objectives

The Occupational Safety and Health Administration (OSHA) requirements for monitoring uncontrolled hazardous waste sites are codified in title 29, section 1910, paragraph 120 of the Code of Federal Regulations (CFR) stating that monitoring must be performed "where there may be a question of employee exposure to hazardous concentrations of hazardous substances in order to ensure proper selection of engineering controls, work practices and personal protective equipment so that employees are not exposed to levels which exceed permissible exposure limits, or other published exposure limits."

1-1-2 Military Unique Chemicals

Military Chemical Warfare Agents (CWA) or degradation products of those agent materials may contaminate air, soil, and water and can present a significant threat to the safety of workers, the public, and the environment. Federal and military agencies require monitoring for the release or presence of hazardous chemicals in ambient air during transportation, storage, and disposal of CWA. During CWA intrusive operations or other activities, air monitoring is used to confirm that workers and the surrounding communities are not exposed to hazardous conditions as a result of the operations. Contamination of the ambient air with HD, L, CG, or PS vapors may present a hazard if the concentration of airborne contaminants rises above the levels indicated in Table 1-1. The Surgeon General establishes the CCL values for each chemical for agents. The Short Term Exposure Limit (STEL) for workplace activities are established by the Occupational Safety and Health Administration (OSHA), the National Institute for Occupational Safety and Health (NIOSH), and the American Conference of Governmental Industrial Hygienists (ACGIH) for the industrial chemicals.

1-1-3 Purpose of Environmental Air Monitoring

Information obtained from air monitoring is used to ensure that Corp of Engineers (COE) hazardous waste projects are being conducted safely and properly to detect any conditions that may cause a release of chemical material that threatens the health of site personnel or may cause damage to the environment.

If the potential condition exists, monitoring data is used to:

- Alert the operators to the problem
- Provide qualitative data to decision makers for responding to and solving the problem
- Predict the impact of a release (such as dispersion of chemical materiel); and provide historical data.

1-1-4 Air Monitoring Systems Planning

An overriding requirement of the design and development of monitoring systems has been the necessity for reliable day-to-day performance. Reliability, in this context, relates to the ability of the monitor to perform its intended function when needed.

Selection of monitoring and sampling locations is also critical to a monitoring program. The monitors must be positioned at, and samples collected from, representative points where any released chemical hazard would likely be detected. Locations for ambient air monitors must be selected to provide optimum information and maximum protection for workers.

Monitoring data collected during operations varies due to different functions performed during Chemical Agent (CA) storage, treatment and repackaging operations. Armed with this information, program personnel can determine what actions need to be taken to regain containment and/or minimize the threat of exposure to workers and the public. If an accidental release does occur, emergency response personnel will use monitoring data to determine the level of threat posed by the release, initiate emergency actions, and verify the effectiveness of measures taken to eliminate the problem. All monitoring equipment used to support operations must meet the following criteria:

- The monitoring equipment must pass an acceptance test
- The monitoring equipment must pass a quality precision and accuracy and baseline study before use and the monitoring system must be approved for use.

1-2 Equipment Acceptance Testing Criteria

Acceptance testing demonstrates the ability of the equipment to properly collect, detect, and quantify the chemical compound of interest. Acceptance tests are performed on the following sampling equipment:

- Depot Area Air Monitoring System (DAAMS) tubes
- Preconcentrator tubes (PCTs)
- MINICAMS®
- Hewlett Packard (HP) Gas Chromatograph Mass Spectrometer with Dynatherm (GCMS).

1-2-1 Reference Quality Plans for Pass Fail Criteria

The acceptance test pass/fail criteria for the MINICAMS®, GCMS, DAAMS tubes and PCTs has been specified by either the Chemical Agent Standard Analytical Reference Material (CASARM) Quality Assurance Plan for Chemical Agent Air Monitoring (QAPCAAM) (Rev 5, Nov 2004) or the Chemical Materials Agency (CMA) Laboratory and Monitoring Quality Assurance Plan (LMQAP) (Final, October 2008). If the

equipment fails the acceptance test, then it is not used in support of the operation. Equipment that fails an acceptance test may be retested at any time. If the equipment is used to monitor for five different chemicals, then it must successfully pass an acceptance test for each of the five chemicals.

1-3 Personnel Acceptance Testing Requirements

Acceptance testing also demonstrates the ability of the operators to properly collect, detect, and quantify the chemical compound of interest.

1-3-1 Method and Operator Certification

Method certification and validation for use of the MINICAMS® will be performed in accordance with (IAW) the CMA-LMQAP. Method certification will consist of a 4-Day Precision and Accuracy (P&A) study for each Class I (fully quantitative) agent method used on-site. Upon completion of the P&A study, the data will be entered into the Certify 6.0 software to determine the pass/fail status of the P&A study.

Upon completion of the Class I method P&A studies, the 3-Day Initial Baseline studies will be performed IAW the CMA-LMQAP Alternate Baseline Performance Criteria.

Method certification and validation for use of the GCMS (Class III) will consist of a 2-Day method certification IAW the CMA-LMQAP.

Upon completion of the Class III method P&A studies, the 3-Day Initial Baseline studies will be performed IAW the CMA-LMQAP Alternate Baseline Performance Criteria.

Method certification for industrial chemicals phosgene (CG) and chloropicrin (PS) validation will be performed IAW the CMA-LMQAP. Method certification will consist of a 1-Day P&A study for each Class A (fully quantitative) chemical method used on-site. Upon completion of the P&A study, the data will be entered into the Certify 6.0 software to determine the pass/fail status of the P&A study. LMQAP (Oct 2008) Table 13-1, 13-2.

Upon completion of the Class A method P&A studies, the 3-Day Initial Baseline studies will be performed IAW the CMA-LMQAP Alternate Baseline Performance Criteria.

1-3-2 Other Operator Proficiency Requirements

Personnel operating the systems will also demonstrate proficiency for the use of, interpretation and collection of data as indicated:

- Only trained monitoring equipment operators operate the monitoring equipment.
- Documentation of samples collected, method of sample collection, and sample collection procedures IAW with the Quality Control Plan (QCP).
- The operators must receive and successfully analyze QC samples that are representative of the project analyte of interest.

- All monitoring equipment used in support of air monitoring sample analysis must be used by the assigned operator and proficiency demonstrated during the P&A study for logging, reporting and troubleshooting the instrument.

- All air monitoring equipment must be calibrated by and meet the calibration and QC sample acceptance requirements stated in the QCP by the operators assigned without deviation. If a new operator is assigned or switched he or she will have to perform said testing and certification prior to use of the instrument.

2 Schilling Airfield Site Specific Air Monitoring

2-1 Site Specific Air Monitoring History and Scope

2-1-1 History

Schilling Airfield is a Formerly Used Defense Site (FUDS). Historical records indicate the planned use of chemical warfare materials for decontamination demonstrations and training. The historical records are not specific enough to definitively rule out the possibility that Chemical Agent Identification Sets (CAIS) or other military unique chemicals were used for the training. The COE has contracted Parsons for collecting the soil samples and One Stop Environmental for analyzing soil samples. CARA will provide air monitoring support as indicated below;

2-1-2 Monitoring Strategy

The purpose of this section is to provide a description for the air monitoring strategy used by CBRNE Analytical and Remediation Activity (CARA) to monitor the airborne concentrations of chemical warfare materiel and specified industrial compounds during intrusive operations for the Schilling Airfield Site Project.

All positive indications during air monitoring activities will be immediately reported to the COE representative and the contractor project manager on site.

Primary site air monitoring will be conducted for the analyte(s) of interest using Near Real Time (NRT) instruments referred to as MINICAMS®. These instruments are mounted on a mobile platform that accommodates ease of movement from location to location.

Each day all MINICAMS® shall receive a QP challenge using standard solutions of chemical agents at concentrations equaling 1.00 STEL every five hours. MINICAMS® operated in accordance with CARA IOP 10 shall be challenged at the distal end of the heated sample line

Confirmation monitoring for L and H agents will be performed on a GCMS mounted on a mobile platform that accommodates ease of movement from location to location.

Confirmation monitoring for L and H will be confirmed by pulling an air sample through a sorbent tube referred to as the Depot Area Air Monitoring System (DAAMS) that are co-located at all MINICAMS® sample locations. DAAMS samples will be collected concurrently with all workspace MINICAMS® samples. The DAAMS samples will not be used to immediately warn of hazardous conditions, but they will be used to document conditions over time and to confirm the results of the near real time monitors. The DAAMS samples for H and L will be analyzed in the onsite GCMS platform. Because of the high volatility of the industrial compounds phosgene (GC), chloropicrin (PS), and chloroform, DAAMS tubes are not amenable for collection of these compounds and cannot be used as a method of confirmation. Three consecutive MINICAMS® alarms for any of the industrial agents is considered a confirmed result. DAAMS samples collected for the purpose of confirming MINICAMS® alarms will only be analyzed in the event of an alarm.

Air monitoring personnel will conduct NRT ambient air monitoring within the workspace area at the sample collection points using both industrial and CA MINICAMS® to the Short Term Exposure Limit. MINICAMS are set to alarm at 0.7 times the STEL hazard level for H and L and 0.70 times the STEL hazard level for CG and PS. The MINICAMS® system will provide warning of airborne exposure hazards at the work site.

Air monitoring personnel will conduct headspace analysis of soil samples collected using both industrial and CA MINICAMS® to the STEL.

Air monitoring personnel will perform headspace analysis of scrap metal or other materials as requested.

Air monitoring personnel will condition and set Worker Population Limit (WPL) DAAMS tubes at designated locations to establish perimeter monitoring of the work space for historical records. The tubes will be set prior to the beginning of intrusive operations and will be collected at the end of the day or every 4 to 8 hours.

Note: WPL DAAMS tube monitoring will not occur if workers are in level C PPE or greater in the immediate work area. Historical tubes will still be set and analyzed.

2-1-3 CARA Site Specific Responsibilities

- Collect and retain all CWA-related air monitoring data generated during this project.
- Provide guidance on monitoring operations conducted on-site.
- Conduct on-site analysis and confirmation for air samples, headspace samples collected from soil, scrap, PPE, bulk items quadrant and historical monitoring.

- Provide certified MINICAMS®, DAAMS flow meters and GCMS on mobile platforms.
- Provide trained and certified personnel to set-up, and calibrate monitoring equipment and collect air monitoring samples for work space and historical monitoring stations.
- Perform air-monitoring procedures as outlined in the Corps of Engineers Scope of Work.

2-1-4 Agents of Concern

A list of suspect chemicals is provided in Table 1 - 1. In the case of conflict with other existing air monitoring plans and SOPs, this Air Monitoring Plan (AMP) will take precedence.

Table 1 - 1: List of Chemicals of Interest – Schilling Airfield Project

Chemical Name	Abbreviation	CAS Number	Airborne Exposure Limit	
			WPL (mg/m^3)	STEL (mg/m^3)
Bis(2-chloroethyl)sulfide	Mustard, H, HS, HD	505-60-2	0.0004	0.003
2-Chlorovinylarsonous dichloride	Lewisite, L	541-25-3	N/A	0.003
Carbonic dichloride	Phosgene, CG	75-44-5	N/A	0.40 (0.1 ppm)
Chloroform	$CHCl_3$	67-66-3	N/A	49 (10 ppm)
Trichloronitromethane	Chloropicrin, (PS)	76-06-2	N/A	0.7 (0.1 ppm)

Permissible Exposure Limit (PEL)

Although unofficially, this value is referred to as STEL for L.

ACGIH Threshold Limit Value (TLV) of 10 ppm converted to mg/m^3

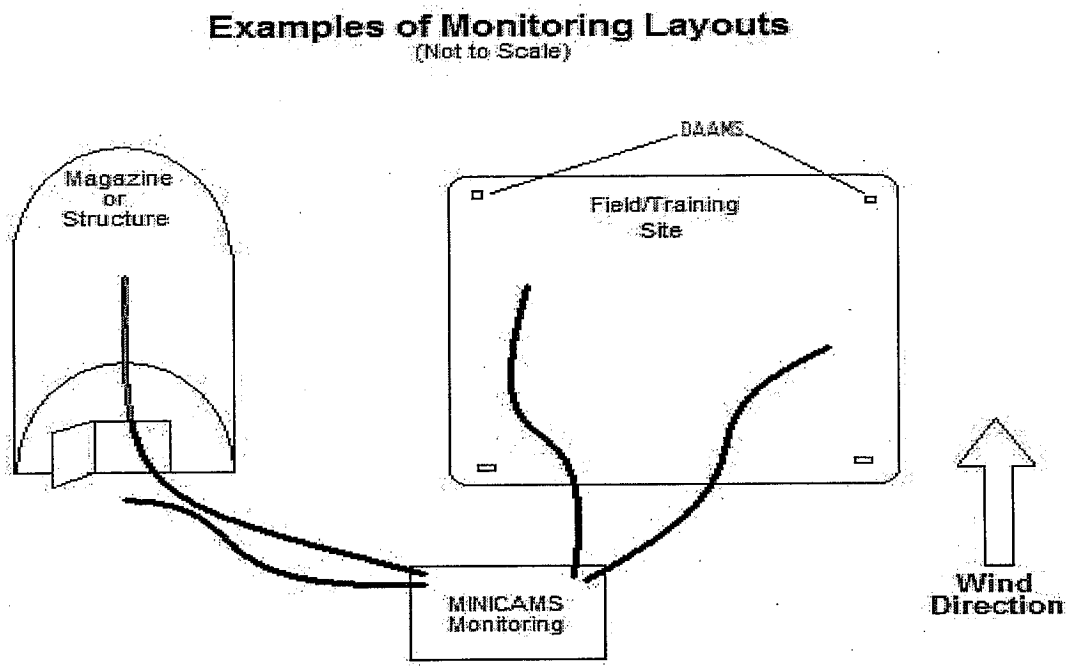
Monitoring for chloroform is conducted at 0.1 ppm (0.49 mg/m^3) to avoid instrument overload

2-1-5 Sample Collection Locations

The vapor samples are collected from the following locations:

- Soil sample collection workspace

- Collected soil sample headspace
- Worksite perimeter



3 Terms and Definitions

3-1-1 Airborne Exposure Limit (AEL)

The AEL is the maximum allowable concentration in the air for occupational and general population exposures of any Chemical Agents. Airborne exposure limits (AEL) for agents are contained in DA Pam 385-61. The U.S. Army has published revised AELs in the Implementation Guidance Policy for Revised Airborne Exposures Limits for GB, GA, GD, GF, VX, H, HD, and HT.

3-1-2 Allowable Exposure Limit

The AEL is the maximum allowable concentration in the air for occupational exposures of any CWA in any eight-hour work shift of a forty-hour workweek. CWA concentrations above the AEL level require the employees in this environment to don protective clothing and leave the work zone or area.

3-1-3 Worker Protection Limit (WPL)

The WPL is the maximum allowable 8 hour time-weighted average concentration that an unmasked worker could be exposed for an 8 hour workday and 40 hour week for 30 years without adverse effect. There is no health significance from a single or short-term exposure of this concentration. Low level monitoring is conducted if workers are unmasked to ensure that corrective actions are taken to prevent continuous exposure at these concentrations.

3-1-4 Short Term Exposure Limit (STEL)

The STEL is the maximum concentration to which unprotected chemical workers may be exposed for up to 15 minutes continuously. Near real time monitoring is conducted at the STEL. Near real time monitoring results will be reported in STEL units.

3-1-5 Immediately Dangerous to Life and Health (IDLH)

A condition posing an immediate threat to life or health regardless of PPE use, including situations where concentrations of contaminants (including military toxic chemical agents) require self-contained, full face piece, positive pressure supplied air respirators. This condition represents the maximum concentration from which, in the event of respiratory failure, the wearer could escape without the respirator and without experiencing any escape impairing or irreversible health effects. For the purpose of the military toxic chemical agent program, IDLH includes atmospheres where oxygen content by volume is less than 19.5 percent.

3-1-6 3X (XXX)

XXX indicates that the item has been surfaced decontaminated by approved procedures, bagged or contained, and that appropriate tests or monitoring have verified that vapor concentrations above the STEL limits for the specific agent(s) do not exist. The term XXX does not apply to a decontaminated liquid, detoxified liquid, soil, or a gas.

3-1-7 Depot Area Air Monitoring System (DAAMS)

The DAAMS is a portable air-sampling unit, which is designed to draw a controlled volume of air through a glass tube filled with a solid sorbent collection material (for example Tenax TA). As the air is passed through the solid sorbent tube, agent is collected on the sorbent bed. After sampling for the predetermined period of time and flow rate, the tube is removed from the vacuum line. The tube is transferred to the Mobile Analytical Platform where it is analyzed (approximately one hour process time). DAAMS monitoring is performed for one of two purposes. The purpose of DAAMS confirmation samples is to confirm or refute a near real time MINICAMS® alarms. The purpose of historical DAAMS samples is to verify the absence of low level CWA in and around the site.

3-1-8 Workspace Monitoring

Work space monitoring provides notification to personnel that there is a problem and that action must be taken. Monitoring devices or sample lines are placed in strategic locations in the work area where there is a potential for encountering agent vapors. The sample locations are determined based on such factors as the agent involved, the airflow patterns in the area, the operation(s) being performed, and the location of the source of the potential release.

3-1-9 Miniature Continuous Air Monitoring System (MINICAMS®)

A MINICAMS® is an automatic air monitoring system that collects compounds on a solid sorbent trap, thermally desorbs them into a capillary gas chromatography column for separation, and detects the compounds with a Halogen Specific Detector (XSD). It is a lightweight, portable, low-level monitor designed to respond in less than ten minutes with alarm capability.

3-1-10 Mobile Analytical Platform (MAP)

The MAP is a self-contained mobile platform that can be moved from site to site. It contains all the equipment necessary to analyze and confirm samples taken with DAAMS tubes.

3-1-11 Internal Operating Procedures (IOP)

Previously approved written monitoring and analysis procedures used by the CBRNE Analytical and Remediation Activity (CARA) at remediation sites. CARA IOP's will be located within the MAP vehicle.

3-1-12 Low-level Alarm

Low-level alarm is a device used in conjunction with a low-level monitor or detector, which produces an audible sound and flashing light when the appropriate concentration at or above the AEL is detected.

3-1-13 Low-level Detectors

Low-level detectors are those detection devices that can provide detection capability for concentrations at or below the established AEL for CA. Examples include MINICAMS, DAAMS.

3-1-14 QL

A Quality Laboratory sample is a quality control sample that has been spiked with a solution of an analyzed dilute chemical agent in the laboratory but which has not been aspirated at a sampling site.

3-1-15 QP

A Quality Process sample is a quality control sample that has been spiked with a solution of an analyzed dilute chemical agent and exposed to the sampling environment.

3-1-16 DA Form 1594 Daily Staff Journal

The DA Form 1594 is an Army record that contains all pertinent sample information.

3-1-17 Exposed Worker

Is an individual working in an agent environment who exhibits clinical signs or symptoms of agent exposure.

3-1-18 Potentially Exposed Worker

A potentially exposed worker is an individual who works in an agent environment where:

i. Levels of chemical warfare agent exceed the protective capability of the personal protective equipment (PPE) or

ii. Levels of chemical warfare agent are above the airborne exposure limit (AEL) and there is a breach in the PPE, or

iii. There is an indeterminate casualty from an agent environment.

3-1-19 MINICAMS® Alarm – A single event when the MINICAMS® result exceeds the alarm set point. The CP is notified by the MINICAMS® operator. The operator reports the MINICAMS® reading in STEL units.

3-1-20 MINICAMS® Ringoff – Three consecutive alarms from MINICAMS® is considered a positive indication for industrial chemicals or two consecutive alarms for chemical agents. DAAMS confirmation is required for all chemical agent alarms.

U.S. Army Corps of Engineers

Sampling and Analysis Plan

In Support of

CWM Site Inspections for Multiple Sites

Project Site:

Former Schilling Air Force Base
Salina, Kansas

November 2009

prepared for:

U.S. Army Engineering and Support Center, Huntsville

and

U.S. Army Corps of Engineers, Kansas City District

prepared by:

One Stop Environmental, LLC
4924 First Ave N.
Birmingham, AL 35222

Contract: W912DY-08-D-0062
Task Order: 0003

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1.0 INTRODUCTION

This document presents a soil sample analysis plan for the U.S. Army Engineering and Support Center - Huntsville (USAESCH) site investigation (SI) to be conducted at Schilling AFB located in Salina, KS.

1.1 PURPOSE

The purpose of this plan is to illustrate the strategy used by One Stop Environmental, LLC (OSE) to analyze soil samples for the presence of chemical warfare materiel (CWM) and specific chemical warfare agent breakdown products (ABP). Soil samples will be analyzed off site at GEOMET Laboratories located in Gaithersburg, Maryland.

1.2 SCOPE

This plan establishes the policies, objectives, procedures, and responsibilities for the execution of an analysis program at the Schilling AFB Site. This monitoring plan applies to all facilities and operations within the site and at the GEOMET laboratory in Gaithersburg, Maryland involving analysis of samples suspected of containing CWM & ABP.

1.3 OBJECTIVE

The objective of this plan is to illustrate the methods used for each analysis of soil samples performed at the GEOMET laboratory in Gaithersburg, Maryland.

2.0 RESPONSIBILITIES

OSE will:

- Collect and retain all analytical data generated during this project.
- Conduct analysis of soil samples for chemical warfare agents and specific breakdown products as listed in Section 3.0.
- Provide personnel, materials, and equipment capable of completing analyses, utilizing the GEOMET laboratory in Gaithersburg, MD.
- Provide trained and certified personnel to maintain certification as part of the Monitoring Branch 40-year record.

- Provide trained and certified personnel to set-up, and calibrate equipment and analyze soil samples for CWM & ABP at the GEOMET facility.

3.0 SOIL SAMPLE ANALYSIS

3.0.1 The intent of this analysis is to provide information that is accurate and defensible, and if present, indicates low-level CWM/ABP contamination results. If the resultant analysis indicates that the samples are positive for CWA/ABP, the details of the analysis will provide the evidence that the soil samples may be safely shipped to off-site contractors for further HTW analyses. Ten soil samples have been proposed to be collected and analyzed for chemical agent and agent breakdown products – mustard and Lewisite. It is anticipated that the sampling will take place within a 5 acre area. Ten (10) different sample locations will be determined with one sample being pulled from each location. An additional ten (10) discretionary soil samples may be taken if required by the Contracting Officer. Samples will be collected by Parsons onsite personnel. Soil samples will be analyzed for the presence of the following compounds based on site requirements and request:

Table 1. List of Chemicals of Interest for the Schilling AFB Site

Chemical Name	**Abbreviation**	**Chemical Abstract Number (CAS)**
Bis(2-chloroethyl)sulfide	Mustard, H	505-60-2
1,4 – Dithiane		505-29-3
1,4 – oxathiane	1,4 – thioxane	15980-15-1
Thiodiglycol	TDG	540-63-6
Dichloro(2-chlorovinyl)arsine	Lewisite, L	541-25-3
2-chlorovinyl arsenous acid *	CVAA	85090-33-1
2-chlorovinyl arsenous oxide *	CVAO	3088-37-7

* CVAA and CVAO are reported as L.

3.0.2 Samples with detections above the Reporting Limit (Table 2) for 1,4-dithiane or 1,4-thioxane will be extracted and analyzed for thiodiglycol (TDG). Soil samples will be extracted

and analyzed at GEOMET (Gaithersburg, MD), after on-site headspace clearance and shipment by commercial carrier.

3.1 ANALYTES OF CONCERN

The following table contains the analytes of concern for the CWM/ABP analyses.

Table 2. Soil Sample Analytes of Concern

Analyte	Method of Analysis	Reporting Limit Soil Matrix (µg/kg)
H	2	10
1,4-Dithiane	2	100
1,4-Thioxane	2	100
L	2	100
CVAA	2	100
CVAO	2	100
Thiodiglycol	1	5000

1: GEOMET CDLD – SOP #38: "The Determination of Lewisite in Soil and Water Samples"

2: GEOMET CDLD – SOP #44: "The Determination of Sulfur Mustard (HD), Nitrogen Mustard (HN-1 & HN-3), 1,4-Thioxane, and 1,4-Dithiane in Soil and Water Samples"

3.2 QUALITY CONTROL

The instruments utilized for the analysis of the soil will be calibrated and challenged in accordance with the OSE Quality Control Plan and the GEOMET Laboratory and Monitoring Quality Control Plan plus applicable GEOMET Standard Operating Procedures. Table 3 contains the quality control requirements for these analyses. The current laboratory limits have been established based on laboratory historical data and are in Table 4.

Table 3. Quality Control Requirements

QC Sample	Frequency	Acceptance Limits	Corrective Action
Method Blank: DI water for liquid samples Clean solid (e.g., clean sand) for solid samples	1 per batch of 20 or fewer samples	Target analytes less than one-half the reporting limit.	Reanalyze all samples associated with unacceptable blank.
Laboratory Control Spike/ Laboratory Control Spike Duplicate (LCS/LCSD)	1 per batch of 20 or fewer samples	Recovery within current laboratory control limits. Limits updated annually at a minimum.	Verify calculations. Re-inject sample to verify validity of analysis. If still non-compliant, re-extract the entire batch.
Matrix Spike/Matrix Spike Duplicate (MS/MSD)	Conducted with specified samples or batch samples'.	Recovery within current laboratory control limits. Limits updated annually at a minimum.	Verify calculations. Correct if needed. If calculations are correct, note in narrative.

Table 4. Current Laboratory Control Limits (Soil)

	LCS/LCSD		MS/MSD	
Spiking Compound	**% $\overline{R}$**	**RPD**	**%R**	**RPD**
Sulfur mustard (HD)	50-150	20	50-150	20
Lewisite (L,CVAA, CVAO)	50-150	20	50-150	20
1,4-Dithiane	50-150	20	50-150	20
1,4-Thioxane	50-150	20	50-150	20
Thiodiglycol (TDG) by HPLC	50-150	20	50-150	20

Note: Tentative limits based on fewer than 20 data points. This will be updated as more points are generated.

3.2.2 A set of MS/MSD samples must be extracted and analyzed in every analytical batch. OSE will use the specified sample if listed on the COC. If there were no samples requested for MS/MSD analyses on the COC, OSE will use a batch sample for the MS/MSD analyses.

3.2.3 The instrument is calibrated by analyzing multiple concentrations using the parameters described in the specific methods. The calibration is accepted if the correlation coefficient is greater than or equal to 0.99. A method blank and LCS/LCSD are analyzed with every batch.

3.2.4 Calibration verification samples are standards that are recommended to be analyzed once every ten samples in any injection batch. These standards reveal to the analyst whether the calibration of the instrument continues to be in control. The control limits are ±20 %D for all target compounds. If the calibration check sample is greater than these limits, analysis must stop; however, previous samples may be reported. If analysis stops, the instrument is recalibrated and all samples analyzed after the last acceptable calibration check sample are reanalyzed.

3.3 DATA REPORTING

The OSE supervisor will report the results of each day's soil extractions in an Analytical Report that will document the following information; (1) Date of soil extraction, (2) Location of soil extraction, (3) Extraction technician's name, (4) Field sample identification number, located on the chain-of-custody received; (5) Results for each analysis, including units; (6) Results of quality control samples; and (7) The laboratory analyst's name.

3.4 HISTORICAL RECORDS

GEOMET shall maintain the electronic database for all soil samples extracted and analyzed. OSE and GEOMET personnel shall be responsible for certifying that operations are conducted according to this plan or the site-specific QC plan. OSE will prepare a final report, if requested, and forward copies of all analytical results to the USAESCH Project Manager.

APPENDIX A

GEOMET CDLD – SOP #38: "The Determination of Lewisite in Soil and Water Samples"

SOP NO. 38

The Determination of Lewisite in Soil and Water Samples

GEOMET Technologies, LLC
Chemical Defense Laboratory Division
8577 Atlas Drive
Gaithersburg, MD 20877

Revision No 1
Date: December 2009

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I. DESCRIPTION

A. Operation

This Standard Operating Procedure (SOP) outlines the procedures to be followed by GEOMET Technologies, LLC, Chemical Defense Laboratory Division (CDLD) for presence and measurement of Lewisite (L) in soil and water samples. Tests are performed in accordance with guidance from United States Army Corps of Engineers, Environmental Protection Agency, or appropriate regulatory authority.

II. LOCATION OF OPERATION

GEOMET CDLD Analytical Research Laboratory (ARL).

III. TYPE(S) AND MAXIMUM AMOUNT(S) OF CHEMICAL AGENTS, WHICH COULD BE INVOLVED.

L: 0.005mL maximum per operation

IV. PERSONAL PROTECTIVE CLOTHING AND EQUIPMENT (PPCE)

A. NIOSH approved respirator for work in CBRN environments

B. Butyl rubber gloves

C. Coveralls, surgical scrubs or other contractor supplied clothing. (lab coat may substituted if no direct handling of Chemical Agent will be performed).

D. Safety glasses

E. Disposable apron

F. Nitrile gloves

V. HAZARDS

A. Refer to 29 CFR 1920.110, “Process Safety Management of Highly Hazardous Chemicals” and the appropriate Material Safety Data Sheets (MSDSs) that meet the requirements of 29 CFR 1910.1200(g) listed in APPENDIX A and the Hazard Analysis in Appendix C. The Hazard Analysis Study File for this SOP is the written record of the Hazard Analysis Process. All MSDSs for this and other operations are available in the CDLD Library.

B. Electrical:

Hazardous voltage (110 VAC) is present in the Gas Chromatograph (GC). Hazard of electrical shock exists.

C. Chemical Agents:

The calibration of the Gas Chromatograph requires the use of L Chemical Agent dilute solutions. L is a highly toxic vesicant.

V. HAZARDS, concluded

D. Other Chemicals:

- 1,2-Ethanedithiol (EDT) is slightly flammable and has a strong odor.
- dichloromethane (DCM) is a suspected carcinogen.

VI. SPECIAL SAFEGUARDS

A. Electrical:

Follow good electrical practices.

B. Chemical:

Safe laboratory practices must be followed in handling toxic and carcinogenic chemicals.

C. Fire:

Use flammable solvents only in small amount and in ventilated areas.

VII. FIRST AID/SELF-AID PROCEDURES

Refer to the appropriate MSDS, GEOMET's Chemical Hygiene Plan, and GEOMET Personnel Reliability Program First Aid Training.

VIII. EMERGENCY PROCEDURES

Refer to the appropriate MSDS, GEOMET's Chemical Hygiene Plan, GEOMET's CAIRA Plan, and GEOMET Personnel Reliability Program Emergency Training.

IX. PROCEDURES FOR CONDUCTING OPERATION

A. Dichloro-2-chlorovinylarsine (LEWISITE (L)) in soil and water samples is extracted into dichloromethane (DCM) and derivatized with 1-2 ethanedithiol (EDT) (CAS#540-63-6). The extract is analyzed using a gas chromatograph equipped with a mass-selective detector. Quantization is determined by the external standard method.

B. For every batch of twenty or fewer customer samples, each of the following QA/QC samples are prepared:
   a. Laboratory Control Sample (LCS) – Ottawa Sand for soil samples or deionized water for water samples.
   b. Matrix Spike (MS) – obtained from a randomly selected client sample.
   c. Matrix Spike Duplicate (MSD) – obtained from a randomly selected client sample. (The same sample that was selected for the MS)
   d. Method Blank (MB) – Ottawa Sand for soil samples or deionized water for water samples.
   e. Sample Duplicate (DUP) – obtained from a randomly selected client sample

C. To assure some degree of homogenization, mix soil samples with a stainless steel spatula prior to analysis.

IX. PROCEDURES FOR CONDUCTING OPERATION, concluded

D. Accurately weigh (± 0.01g) of each sample into a separate 15mL screw-top vial. Sample sizes are 2g for soil and 2mL for water.

E. Spike the LCS, MS, and MSD with an amount of L compatible with the concentration action level of the analysis. The MB and DUP are not spiked.

F. Add 2.0mL of DCM to each sample and cap off immediately. Add one microliter (1µL) of neat EDT to each sample tube.

G. Agitate samples for 10 minutes using a sonic bath.

H. Let samples stand to separate. If necessary, transfer the contents of the vial into a centrifuge tube and subsequently centrifuge the tube until a defined extract layer of DCM is formed.

I. Transfer a portion of the clear extract layer to a 1.8mL GC vial. For water samples, the DCM extract layer is below the water layer. Samples are now ready for chromatographic analyses.

J. QA/QC controls and samples shall be processed at the same time to show method efficiency and validity.

X. INSTRUMENT SET-UP AND ANALYSIS CONDITIONS

GAS CHROMATOGRAPH WITH MASS SELECTIVE DETECTOR (GC/MSD)

INSTRUMENT:	HEWLETT-PACKARD 6890 EQUIPPED WITH A 5973 MASS SELECTIVE DETECTOR
CARRIER GAS:	HELIUM
INLET TEMPERATURE:	250°C
INJECTION MODE:	SPLITLESS FOR 0.5 MINUTES
INJECTION VOLUME:	1.0µL
COLUMN:	DB1701; 0.32mm × 30m × 0.25µ phase thickness
COLUMN FLOW:	1.3 mL/min (Constant Flow Mode)
OVEN TEMPERATURE PROGRAM:	INITIAL TEMPERATURE = 60°C INITIAL HOLD = 2 min; 60 to 280°C @ 25°C/min FINAL HOLD = 2 min
DATA ACQUISITION:	Full Scan and Selective Ion Mode
Quantitation Ion / Relative Abundance	107/100%
Confirmation Ion 1/ Relative Abundance	167/53.3%
Confirmation Ion 2/ Relative Abundance	228/25.6%
Confirmation Ion 3/ Relative Abundance	230/10.2%

♠Other ions may be substituted for those suggested if sample complexity requires it. Ions should be selected from an authentic mass spectrum of the analyte.

XI. CALIBRATION

A. Prepare five calibration standard levels of L in DCM. Add one microliter (1µL) of neat EDT to each calibration standard level.

B. The calibration standards should bracket the action level of the analysis.

C. Check the tune of the mass spectrometer. Auto tune if necessary.

D. Inject each standard to construct a calibration curves for L.

E. If the calibration plot shows significant scatter ($r^2 < 0.995$) the calibration should be repeated. (If necessary, perform instrument maintenance)

XII. DAILY INSTRUMENT QUALITY CONTROL (QC) & MAINTENANCE

A. If necessary, change the injector septum and/or liner, and then make a chromatographic injection, injecting only solvent. If a clean instrumental background is not obtained, perform whatever instrumental maintenance necessary to obtain a clean background.

B. Perform mid-point continuing calibration verification (CCV) to assure that the instrument is still in calibration (± 25%). Recalibrate if necessary.

C. Run a LCS to assure acceptable recovery (>75% at the concentration action level of the analysis). If an acceptable recovery is not obtained, check the method parameters and make the necessary corrections to obtain acceptable recovery.

XIII. SAMPLES

A. Analyze a mid-point CCV initially and after every 5 samples. If the quality control sample show unsatisfactory results (see Section XIV), the analytical system must be corrected before any client samples are analyzed. Using a chromatographic data system, produce a chromatographic report of analysis for each sample, CCV and QA/QC samples. Analyze samples, using the appropriate instrumental conditions as listed in Section X.

XIV. QUALITY MEASURES

A. Method blanks (MB) shows that the method itself does not produce false positives. A significant analyte response (>5% of the action level) in the MB indicates that the analytical system is contaminated. The source of this contamination must be removed prior to running any client samples.

B. Matrix spikes (MS) and matrix spike duplicates (MSD) give an estimate of the ability of the analytical method to recover analytes from a sample matrix. MS and MSD recoveries should be greater than 75%.

C. The laboratory control sample (LCS) consists of a matrix of Ottawa Sand or Deionized water, which is spiked with the analytes at a concentration consistent with the action level of the analysis. This quality measure ensures that the method is producing analytical values consistent with the laboratory's historical database. The LCS values should not deviate substantially from the historic trend of values.

XIV. QUALITY MEASURES, concluded

D. The mid-point continuing calibration verification (CCV) determines whether the GC/MS system needs to be recalibrated.

XV. DATA REDUCTION

A. Identification of Analyte Positive

1. A GC/MS presumptive is an analyte peak that elutes at that analyte's retention time and contains a peak area at least as large as that of the lowest standard in that analyte's calibration curve.

2. GC/MS presumptive positives will be confirmed by comparing the ratios of the measurement ions of that sample with those observed during the calibration run. The analyte can be identified as present only if the relative abundance's of **ALL** the confirmation ion ratios are within 20 relative percent of the abundance values in the calibration spectra. For every positive sample, analyze that sample at least one additional time. If the replicate is positive then that sample can be reported as positive for the analyte in question.

3. In the event of a positive result from a sample. That sample is re-extracted and reanalyzed with an additional set of QC to confirm or rebuff the initial result. The results should be compared to authentic analyte library spectra.

B. Calculation of Analyte Concentration

1. Using the area of the analyte peak and the analyte's calibration curve, determine the amount of the analyte present in the extract injected onto the gas chromatograph.

2. The presumptive concentration of the analyte (L) in the sample is determined from the following equation:

[Analyte], ng/g= (ng found in extract injected) (2000µL/2µL) (1/sample weight, g)

XVI. DECONTAMINATION

Refer to CDLD's Chemical Hygiene Plan, associated MSDSs and other CDLD documentation for decontamination procedures.

APPENDIX A

HAZARDOUS OPERATION

****ASSURE BUDDY IS PRESENT IN THE ROOM PRIOR TO THE START OF OPERATIONS****

PERSONNEL	YES	NO	N/A
NECESSARY NUMBER OF TRAINED AND/OR CLEARED PERSONNEL PRESENT IN BUILDING TO SUPPORT RESPECTIVE OPERATION / ACTIVITY			

PPE EQUIPMENT AVAILABLE	YES	NO	N/A
NIOSH APPROVED RESPIRATOR FOR CBRN ENVIRONMENTS (with DATE OR CONDITION OF REPLACEMENT)			
LAB COAT, APRON, SURGICAL SCRUBS			
SUFFICIENT PAIRS OF NITRILE GLOVES AVAILABLE			
EYE AND EAR PROTECTION			
PROPER LEVEL OF PPE WORN BY OPERATOR			
MASK CHECK IS CURRENT			

DOCUMENTATION	YES	NO	N/A
CURRENT SOP AVAILABLE AND SIGNED			
EMERGENCY PROCEDURES AVAILABLE			
MSDS FOR CHEMICAL MATERIAL(S) USED			

VENTILATION	YES	NO	N/A
SASH AT APPROVED LEVEL			
ALL MATERIAL LOCATED BEHIND THE 20cm LINE			

FIRST AID AND EMERGENCY EQUIPMENT	YES	NO	N/A
APPROPRIATE NUMBER OF NERVE AGENT KITS AVAILABLE			
EYEWASH & SHOWER FACILITIES OPERABLE & INSPECTED			
FIRST AID KIT AVAILABLE			
EMERGENCY CONTACT NUMBERS POSTED			

COMPRESSED GASES USED FOR TESTING	YES	NO	N/A
TAGGED WITH CYLINDER STATUS (i.e., IN-USE, EMPTY, etc.)			
PROPERLY CONNECTED AND STORED			

ITEM/ EQUIPMENT DECONTAMINATION	YES	NO	N/A
10% NaOH FOR G & L AGENTS (AMPLE QUANTITIES)			
5.0% NaOCL FOR G, H & V AGENTS (AMPLE QUANTITIES)			
DECONTAMINATION WASTE CONTAINERS AVAILABLE AND PROPERLY LABELED			

PERSONNEL DECONTAMINATION	YES	NO	N/A
LIQUID SOAP			
WATER			

CALIBRATED INSTRUMENTS	YES	NO	N/A
ANALYTICAL BALANCE			

PRINCIPAL INVESTIGATOR: _____ **DATE:** _____

ASSISTANT I: _____ **DATE:** _____

APPENDIX B

GEOMET CDLD – SOP #44: "The Determination of Sulfur Mustard (HD), Nitrogen Mustard (HN-1 & HN-3), 1,4-Thioxane, and 1,4-Dithiane in Soil and Water Samples"

SOP NO. 44

The Determination of Sulfur Mustard (HD), Nitrogen Mustard (HN-1 & HN-3), 1,4-Thioxane, and 1,4-Dithiane in Soil and Water Samples

GEOMET Technologies, LLC
Chemical Defense Laboratory Division
8577 Atlas Drive
Gaithersburg, MD 20877

Revision No 1
Date: 10 December 2009

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I. DESCRIPTION

A. Operation

This Standard Operating Procedure (SOP) outlines the procedures to be followed by GEOMET Technologies, LLC, Chemical Defense Laboratory Division (CDLD) for presence and measurement of Sulfur Mustard (HD), Nitrogen Mustard-1 (HN-1), Nitrogen Mustard-3 (HN-3), 1,4-Thioxane (TH), and 1,4-Dithiane (DT) in soil and water samples. Tests are performed in accordance with guidance from United States Army Corps of Engineers, Environmental Protection Agency, or appropriate regulatory authority.

II. LOCATION OF OPERATION

GEOMET CDLD Analytical Research Laboratory (ARL).

III. TYPE(S) AND MAXIMUM AMOUNT(S) OF CHEMICAL AGENTS, WHICH COULD BE INVOLVED.

HD: 0.005mL maximum per operation
HN-1: 0.005mL maximum per operation
HN-3: 0.005mL maximum per operation

IV. PERSONAL PROTECTIVE CLOTHING AND EQUIPMENT (PPCE)

A. NIOSH approved respirator for work in CBRN environments

B. Butyl rubber gloves

C. Coveralls, surgical scrubs or other contractor supplied clothing (lab coat may be substituted if no direct handling of Chemical Agent will be performed).

D. Safety glasses

E. Disposable apron

F. Nitrile gloves

V. HAZARDS

A. Refer to 29 CFR 1920.110, “Process Safety Management of Highly Hazardous Chemicals” and the appropriate Material Safety Data Sheets (MSDSs) that meet the requirements of 29 CFR 1910.1200(g) listed in APPENDIX A and the Hazard Analysis in Appendix C. The Hazard Analysis Study File for this SOP is the written record of the Hazard Analysis Process. All MSDSs for this and other operations are available in the CDLD Library.

B. Electrical:

Hazardous voltage (110 VAC) is present in the Gas Chromatograph (GC). Hazard of electrical shock exists.

V. HAZARDS, concluded

C. Chemical Agents:

The calibration of the Gas Chromatograph requires the use of HD, HN-1 & HN-3 Chemical Agent dilute solutions. HD, HN-1, & HN-3 are highly toxic vesicants.

D. Other Chemicals:

- Dichloromethane (DCM) is a suspected carcinogen.
- Thioxane is highly flammable and is also a skin irritant.
- Dithane is a skin irritant and has a strong odor.

VI. SPECIAL SAFEGUARDS

A. Electrical:

Follow good electrical practices.

B. Chemical:

Safe laboratory practices must be followed in handling toxic and carcinogenic chemicals.

C. Fire:

Use flammable solvents only in small amount and in ventilated areas.

VII. FIRST AID/SELF-AID PROCEDURES

Refer to the appropriate MSDS, GEOMET's Chemical Hygiene Plan, and GEOMET Personnel Reliability Program First Aid Training.

VIII. EMERGENCY PROCEDURES

Refer to the appropriate MSDS, GEOMET's Chemical Hygiene Plan, GEOMET's CAIRA Plan, and GEOMET Personnel Reliability Program Emergency Training.

IX. PROCEDURES FOR CONDUCTING OPERATION

A. Bis (2-chloroethyl)sulfide (SULFUR MUSDTARD (HD)), Bis(2-chloroethyl)ethylamine (HN-1), Tris(2-chloroethyl)amine (HN-3), 1,4-thioxane (TH); and/or 1,4-dithiane (DT) in soil and water samples are extracted into dichloromethane (DCM). The extract is analyzed using a gas chromatograph equipped with a mass-selective detector. Quantization is determined by the external standard method.

IX. PROCEDURES FOR CONDUCTING OPERATION

B. For every batch of twenty or fewer customer samples, each of the following QA/QC samples are prepared:
   a. Laboratory Control Sample (LCS) – Ottawa Sand for soil samples or deionized water for water samples.
   b. Matrix Spike (MS) – obtained from a randomly selected client sample.
   c. Matrix Spike Duplicate (MSD) – obtained from a randomly selected client sample. (The same sample that was selected for the MS)
   d. Method Blank (MB) – Ottawa Sand for soil samples or deionized water for water samples.
   e. Sample Duplicate (DUP) – obtained from a randomly selected client sample.

C. To assure some degree of homogenization, mix soil samples with a stainless steel spatula prior to analysis.

D. Accurately weigh (± 0.01g) of each sample into a separate 15mL screw-top vial. Sample sizes are 2g for soil and 2mL for water.

E. Spike the LCS, MS, and MSD with an amount of HD, HN-1, HN-3, TH, & DT compatible with the concentration action level of the analysis. The MB and DUP are not spiked.

F. Add 2.0mL of DCM to each sample and cap off immediately.

G. Agitate samples for 10 minutes using a sonic bath.

H. Let samples stand to separate. If necessary, transfer the contents of the vial into a centrifuge tube and subsequently centrifuge the tube until a defined extract layer of DCM is formed.

I. Transfer a portion of the DCM extract layer to a 1.8mL GC vial. For water samples, the DCM extract layer is below the water layer. Samples are now ready for chromatographic analyses.

J. QA/QC controls and samples shall be processed at the same time to show method efficiency and validity.

X. INSTRUMENT SET-UP AND ANALYSIS CONDITIONS

GAS CHROMATOGRAPH WITH MASS SELECTIVE DETECTOR (GC/MSD)

INSTRUMENT:	HEWLETT-PACKARD 6890 EQUIPPED WITH A 5973 MASS SELECTIVE DETECTOR
CARRIER GAS:	HELIUM
INLET TEMPERATURE:	250°C
INJECTION MODE:	SPLITLESS FOR 0.5 MINUTES
INJECTION VOLUME:	1.0µL
COLUMN:	DB1701; 0.32mm × 30m × 0.25µ phase thickness
COLUMN FLOW:	1.3 mL/min (Constant Flow Mode)
OVEN TEMPERATURE PROGRAM:	INITIAL TEMPERATURE = 60°C INITIAL HOLD = 2 min; 60 to 280°C @ 25°C/min FINAL HOLD = 2 min
DATA ACQUISITION:	Full Scan and Selective Ion Mode
HD QUANTITATION IONS♠	109, 111, 158, 160
HN-1 QUANTITATION IONS♠	120, 122, 92, 63
HN-3 QUANTITATION IONS♠	154, 156, 63
TH QUANTITATION IONS♠	104, 74, 61
DT QUANTITATION IONS♠	120, 61, 92

♠Other ions may be substituted for those suggested if sample complexity requires it. Ions should be selected from an authentic mass spectrum of the analyte.

XI. CALIBRATION

A. Prepare five calibration standard levels of a mixture of HD, HN-1, HN-3, TH, & DT in DCM.

B. The calibration standards should bracket the action level of the analysis.

C. Check the tune of the mass spectrometer. Auto tune if necessary.

D. Inject each standard to construct calibration curves for HD, HN-1, HN-3, TH, & DT.

E. If the calibration plot shows significant scatter ($r^2 < 0.995$) the calibration should be repeated. (If necessary, perform instrument maintenance).

XII. DAILY INSTRUMENT QUALITY CONTROL (QC) & MAINTENANCE

A. If necessary, change the injector septum and/or liner, and then make a chromatographic injection, injecting only solvent. If a clean instrumental background is not obtained, perform whatever instrumental maintenance necessary to obtain a clean background.

B. Perform a mid-point continuing calibration verification (CCV) to assure that the instrument is still in calibration (± 25%). Recalibrate if necessary.

C. Run a LCS to assure acceptable recovery (>75% at the concentration action level of the analysis). If an acceptable recovery is not obtained, check the method parameters and make the necessary corrections to obtain acceptable recovery.

XIII. SAMPLES

Analyze a mid-point CCV initially and after every 5 samples. If the quality control sample show unsatisfactory results (see Section XIV), the analytical system must be corrected before any client samples are analyzed. Using a chromatographic data system, produce a chromatographic report of analysis for each sample, sample duplicate, CCV and QA/QC samples. Analyze samples, using the appropriate instrumental conditions as listed in Section X.

XIV. QUALITY MEASURES

A. Method blanks (MB) shows that the method itself does not produce false positives. A significant analyte response (>5% of the action level) in the MB indicates that the analytical system is contaminated. The source of this contamination must be removed prior to running any client samples.

B. Matrix spikes (MS) and matrix spike duplicates (MSD) give an estimate of the ability of the analytical method to recover analytes from a sample matrix. MS and MSD recoveries should be greater than 75%. Exceptions to that rule may become necessary due to unavoidable systematic losses, such as low extraction efficiencies due to the high water solubility of the analyte 1,4-thioxane.

C. The laboratory control sample (LCS) consists of a matrix of Ottawa Sand or Deionized water, which is spiked with the analytes at a concentration consistent with the action level of the analysis. This quality measure ensures that the method is producing analytical values consistent with the laboratory's historical database. The LCS values should not deviate substantially from the historic trend of values.

D. The mid-point continuing calibration verification (CCV) determines whether the GC/MS system needs to be recalibrated.

XV. DATA REDUCTION

A. Positive Identification of Analyte(s)

1. A GC/MS presumptive is an analyte peak that elutes at that analyte's retention time and contains a peak area at least as large as that of the lowest standard in that analyte's calibration curve.

2. GC/MS presumptive positives will be confirmed by comparing the ratios of the measurement ions of that sample with those observed during the calibration run. The analyte can be identified as present only if the relative abundance's of **ALL** the confirmation ion ratios are within 20 relative percent of the abundance values in the calibration spectra. For every positive sample, analyze that sample at least one additional time. If the replicate is positive then that sample can be reported as positive for the analyte in question.

3. In the event of a positive result from a sample. That sample is re-extracted and reanalyzed with an additional set of QC to confirm or rebuff the initial result. The results should be compared to authentic analyte library spectra.

XV. DATA REDUCTION, concluded

B. Calculation of Analyte Concentration

1. Using the area of the analyte peak and the analyte's calibration curve, determine the amount of the analyte present in the extract injected onto the gas chromatograph.

2. The presumptive concentration of the analyte (HD, HN-1, HN-3, TH, & DT) in the sample is determined from the following equation:

[Analyte], ng/g= (ng found in extract injected) (2000µL/2µL) (1/sample weight, g)

XVI. DECONTAMINATION

Refer to CDLD's Chemical Hygiene Plan, associated MSDSs and other CDLD documentation for decontamination procedures.

APPENDIX A

HAZARDOUS OPERATION

****ASSURE BUDDY IS PRESENT IN THE ROOM PRIOR TO THE START OF OPERATIONS****

PERSONNEL	YES	NO	N/A
NECESSARY NUMBER OF TRAINED AND/OR CLEARED PERSONNEL PRESENT IN BUILDING TO SUPPORT RESPECTIVE OPERATION / ACTIVITY			

PPE EQUIPMENT AVAILABLE	YES	NO	N/A
NIOSH APPROVED RESPIRATOR FOR CBRN ENVIRONMENTS (with DATE OR CONDITION OF REPLACEMENT)			
LAB COAT, APRON, SURGICAL SCRUBS			
SUFFICIENT PAIRS OF NITRILE GLOVES AVAILABLE			
EYE AND EAR PROTECTION			
PROPER LEVEL OF PPE WORN BY OPERATOR			
MASK CHECK IS CURRENT			

DOCUMENTATION	YES	NO	N/A
CURRENT SOP AVAILABLE AND SIGNED			
EMERGENCY PROCEDURES AVAILABLE			
MSDS FOR CHEMICAL MATERIAL(S) USED			

VENTILATION	YES	NO	N/A
SASH AT APPROVED LEVEL			
ALL MATERIAL LOCATED BEHIND THE 20cm LINE			

FIRST AID AND EMERGENCY EQUIPMENT	YES	NO	N/A
APPROPRIATE NUMBER OF NERVE AGENT KITS AVAILABLE			
EYEWASH & SHOWER FACILITIES OPERABLE & INSPECTED			
FIRST AID KIT AVAILABLE			
EMERGENCY CONTACT NUMBERS POSTED			

COMPRESSED GASES USED FOR TESTING	YES	NO	N/A
TAGGED WITH CYLINDER STATUS (i.e., IN-USE, EMPTY, etc.)			
PROPERLY CONNECTED AND STORED			

ITEM/ EQUIPMENT DECONTAMINATION	YES	NO	N/A
10% NaOH FOR G & L AGENTS (AMPLE QUANTITIES)			
5.0% NaOCL FOR G, H & V AGENTS (AMPLE QUANTITIES)			
DECONTAMINATION WASTE CONTAINERS AVAILABLE AND PROPERLY LABELED			

PERSONNEL DECONTAMINATION	YES	NO	N/A
LIQUID SOAP			
WATER			

CALIBRATED INSTRUMENTS	YES	NO	N/A
ANALYTICAL BALANCE			

PRINCIPAL INVESTIGATOR: _____ **DATE:** _____

ASSISTANT I: _____ **DATE:** _____

APPENDIX E
TPP WORKSHEETS

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CAIS DATA QUALITY OBJECTIVE WORKSHEET

SITE: **Schilling Air Force Base**
PROJECT: **CWM Site Inspection / FUDS Project No. B07KS025607**
DQO STATEMENT NUMBER: **1 of 4**

DQO Element Number*	**DQO Element Description***	**Site-Specific DQO Statement**
Intended Data Use(s):		
1	Project Objective(s) Satisfied	Evaluate presence/lack thereof of CAIS.
Intended Need Requirements:		
2	Data User Perspective(s)	Risk, Remedy
3	Contaminant or Characteristic of Interest	CAIS
4	Media of Interest	N/A
5	Required Locations or Areas	5-acre area surrounding former gas instruction building (represents most likely location for CAIS burial)
6	Number of Samples Required	N/A. Digital Geophysical Mapping (DGM) of 5-acre area.
7	Reference Concentration of Interest or Other Performance Criteria	Identification of large anomaly that would be consistent with CAIS shipping container (Pig) burial. If identified, recommendation will be made regarding subsequent actions at the site.
Appropriate Sampling and Analysis Methods:		
8	Sampling Method	Geophysical survey
9	Analytical Method	DGM data processing and comparison to data results from known CAIS pig burial locations.

CAIS = Chemical Agent Identification Set(s), CWM = Chemical Warfare Materiel, DGM = Digital Geophysical Mapping, DQO = Data Quality Objective, FUDS = Formerly Used Defense Sites, N/A = Not applicable
* Refer to EM 200-1-2, Paragraph 4.2.1

CA/ABP DATA QUALITY OBJECTIVE WORKSHEET

SITE: **Schilling Air Force Base**
PROJECT: **CWM Site Inspection / FUDS Project No. B07KS025607**
DQO STATEMENT NUMBER: **2 of 4**

DQO Element Number*	DQO Element Description*	Site-Specific DQO Statement
Intended Data Use(s):		
1	Project Objective(s) Satisfied	Evaluate presence/lack thereof of CA/ABPs
Intended Need Requirements:		
2	Data User Perspective(s)	Risk, Remedy
3	Contaminant or Characteristic of Interest	Mustard and Lewisite and agent breakdown products (1,4-Dithiane; 1,4-Thioxane, CVAA, CVAO)
4	Media of Interest	Soil
5	Required Sampling Locations or Areas and Depths	Area immediately surrounding the former gas instruction building, including possible decontamination area indicated on 1954 air photo (bare ground noted east of gas building). Sample interval 12 to 18 inches below ground surface (below depth disturbed by farming/discing)
6	Number of Samples Required	10 grab samples from grid-based pattern plus 10 discretionary samples, as determined by the field team. Plus associated QA/QC samples.
7	Reference Concentration of Interest or Other Performance Criteria	Screening criteria for human health: H = 10 ug/kg L, CVAA, CVOA = 300 ug/kg 1,4-Dithiane = 610000 ug/kg 1,4-Thioxane = 610000 ug/kg Thiodiglycol = 24000000 ug/kg
Appropriate Sampling and Analysis Methods:		
8	Sampling Method	Soil samples collected in accordance with the PSAP and Site-Specific Work Plan SAP (to be completed after TPP process).
9	Analytical Method	Geomet CDLD SOP-44

CA/ABP = Chemical Agent/ Agent Breakdown Product, CDLD = chemical defense laboratory division, CVAA = 2-chlorovinyl arsenous acid, CVAO = 2-chlorovinyl arsenous oxide, CWM = Chemical Warfare Materiel, DQO = Data Quality Objective, H = mustard, L = Lewisite, QA/QC = Quality Assurance/Quality Control, ug/kg milligrams per kilogram, PSAP = Programmatic Sampling and Analysis Plan, SAP = Sampling and Analysis Plan, SOP = standard operating procedure, TPP = Technical Project Planning, ug/kg = microgram per kilogram.
* Refer to EM 200-1-2, Paragraph 4.2.1

MRSPP DATA QUALITY OBJECTIVE WORKSHEET

SITE: **Schilling Air Force Base**
PROJECT: **CWM Site Inspection / FUDS Project No. B07KS025607**
DQO STATEMENT NUMBER: **3 of 4**

DQO Element Number*	**DQO Element Description***	**Site-Specific DQO Statement**
Intended Data Use(s):		
1	Project Objective(s) Satisfied	Completion of MRSPP Scoring sheets
Intended Need Requirements:		
2	Data User Perspective(s)	Risk and remedy
3	Contaminant or Characteristic of Interest	CAIS, CA/ABPs
4	Media of Interest	Soil
5	Required Sampling Locations or Areas and Depths	IAW CA/ABP DQO
6	Number of Samples Required	IAW CA/ABP DQO
7	Reference Concentration of Interest or Other Performance Criteria	Completion of Explosive Hazard Evaluation (EHE) Tables 1 - 10, Chemical Hazard Evaluation (CHE) Tables 11 – 20, and Health Hazard Evaluation (HHE) Tables 21 – 25.
Appropriate Sampling and Analysis Methods:		
8	Sampling Method	N/A
9	Analytical Method	N/A

CAIS = Chemical Agent Identification Set(s), CA/ABP = Chemical Agent/ Agent Breakdown Product, CHE = Chemical Hazard Evaluation, CWM = Chemical Warfare Materiel, DQO = Data Quality Objective, EHE = Explosive Hazard Evaluation, FUDS = Formerly Used Defense Site, HHE = Health Hazard Evaluation, IAW = in accordance with, MRSPP = Munitions Response Site Prioritization Protocol
* Refer to EM 200-1-2, Paragraph 4.2.1

HRS DATA QUALITY OBJECTIVE WORKSHEET

SITE: **Schilling Air Force Base**
PROJECT: **CWM Site Inspection / FUDS Project No. B07KS025607**
DQO STATEMENT NUMBER: **4 of 4**

DQO Element Number*	**DQO Element Description***	**Site-Specific DQO Statement**
Intended Data Use(s):		
1	Project Objective(s) Satisfied	Collection of EPA HRS CA/ABP-related information
Intended Need Requirements:		
2	Data User Perspective(s)	Risk, compliance, and remedy
3	Contaminant or Characteristic of Interest	IAW CA/ABP DQO
4	Media of Interest	Soil
5	Required Sampling Locations or Areas and Depths	IAW CA/ABP DQO
6	Number of Samples Required	IAW CA/ABP DQO
7	Reference Concentration of Interest or Other Performance Criteria	Results of the CA/ABP findings in order for EPA to complete the MC-related HRS scoring.
Appropriate Sampling and Analysis Methods:		
8	Sampling Method	IAW CA/ABP DQO
9	Analytical Method	IAW CA/ABP DQO

CA/ABP = Chemical Agent/ Agent Breakdown Product, CHE = Chemical Hazard Evaluation, CWM = Chemical Warfare Materiel, DQO = Data Quality Objective, EPA = Environmental Protection Agency, FUDS = Formerly Used Defense Site, HRS = Hazardous Ranking System, IAW = in accordance with, MC = Munitions Constituents.

* Refer to EM 200-1-2, Paragraph 4.2.1

Former Schilling Air Force Base CWM SI

TPP Team	EM 200-1-2, Paragraph 1.1.1	
Decision Makers		
Customer	USACE Kansas City District (CENWK)	
Project Manager	Thomas Simmons, CENWK and Paula Henderson, USAESCH	
Regulators	Kansas Department of Health and Environment (KDHE), EPA Region 7	
Primary Stakeholders	Salina Airport Authority, City of Salina	
Data Types	**Data Users**	**Data Gatherer**
Demographics/Land Use	Risk, Responsibility, and Compliance Perspectives	Parsons (SI Team)
Site Conditions	Remedy Perspective	Parsons (SI Team)
Munitions and Explosives of Concern including CWM	Risk and Remedy Perspectives	Parsons (SI Team)
Archaeology	Compliance and Remedy Perspectives	CENWK, Parsons (avoidance)
Endangered Species	Risk and Compliance Perspectives	CENWK, Parsons (avoidance)

CUSTOMER'S GOALS	EM 200-1-2, Paragraph 1.1.2		
Areas of Concern	**Contaminant Issues**	**Future Land Use**	**Site-specific Closeout Goal (if applicable)**
Former Schilling Air Force Base, Gas Instruction Area	CWM, CA/ABPs	Agricultural, Commercial	TBD
Site Closeout Statement			
To manage CWM or CA/ABP risk (if present) through a combination of remedial action, administrative controls, and/or public education; thereby rendering the site as safe as reasonably possible to humans and the environment and conducive to the anticipated future land use.			
Customer's Schedule Requirements			
Site Inspection and Reporting Complete by December 17, 2010			
Customer's Site Budget			
Site Inspection and Reporting: Confidential			

IDENTIFY SITE APPROACH		
EXISTING SITE INFORMATION & DATA	**EM 200-1-2, Paragraph 1.1.3 and 1.2.1**	
Existing Data	**Located at Repository**	**Preliminary Conceptual Site Model**
Archives Search Report	N/A for SI Phase; Implemented in post-SI Phase as warranted	No
Site-Specific SI Work Plan	N/A for SI Phase; Implemented in post-SI Phase as warranted	Yes

POTENTIAL POINTS OF COMPLIANCE	**EM 200-1-2, Paragraph 1.2.1.3**
Determination of absence or presence of CWM	

MEDIA OF POTENTIAL CONCERN	**EM 200-1-2, Paragraph 1.2.1.4**
Qualitative review of CWM presence.	

SITE OBJECTIVES	**EM 200-1-2, Paragraph 1.2.2**
Collection of sufficient DGM and CA/ABP data results	
See Programmatic and Site-Specific Work Plan (to be developed)	
See Attached Worksheets Developed by the Project Team	

REGULATOR AND STAKEHOLDER PERSPECTIVES	**EM 200-1-2, Paragraph 1.2.3**	
Regulators	**Community Interests**	**Others**
TBD	TBD	TBD

PROBABLE REMEDIES	**EM 200-1-2, Paragraph 1.2.4**
No Department of Defense Action Indicated (NDAI)	

EXECUTABLE STAGES TO SITE CLOSEOUT	**EM 200-1-2, Paragraph 1.2.5**
Site Inspection (SI) - possible NDAI, otherwise:	
Remedial Investigation/Feasibility Study (RI/FS)	
Proposed Plan	
Decision Document	
Remedial Design	
Remedial Action (as necessary)	
Recurring Review	
Time Critical Removal Action (as required)	

IDENTIFY CURRENT PROJECT		
SITE CONSTRAINTS AND DEPENDENCIES	**EM 200-1-2, Paragraph 1.3.1**	
Administrative Constraints and Dependencies		
Rights of Entry		
Funding beyond the SI, if required		
Concurrent planning programs		
Scheduling		
Technical Constraints and Dependencies		
Property owner/leaseholder site activities (Site access)		
Topography/vegetation		
Legal and Regulatory Milestones and Requirements		
Consistent with CERCLA and the NCP, and in compliance with all legally applicable Federal and State requirements.		
Public, stakeholder, and regulatory involvement and review of key documents (see schedule)		
Funding beyond the SI		
CURRENT EXECUTABLE STAGE	**EM 200-1-2, Paragraph 1.3.3**	
TPP Technical Memorandum		
Site-Specific Work Plan		
Site Inspection		
SI Report Recommendation		
See Attached Worksheets Developed by the Project Team		
Basic (For Current Projects)	**Optimum** (For Future Projects)	**Excessive** (Objectives that do not lead to site closeout)
Site Reconnaissance	RI/FS	

Acronyms

CA/ABP - Chemical Agent/Agent Breakdown Product
CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act
CENWK - U.S. Army Corps of Engineers, Kansas City District
CWM - Chemical Warfare Materiel
DGM - Digital Geophysical Mapping
EPA - Environmental Protection Agency
KDHE - Kansas Department of Health and Environment
NDAI - No Department of Defense Action Indicated
NCP - National Contingency Plan
RI/FS - Remedial Investigation and Feasibility Study
SI - Site Inspection
TBD - To be determined
TPP - Technical Project Planning
USACE - U.S. Army Corps of Engineers
USAESCH - U.S. Army Engineering and Support Center, Huntsville

PROJECT OBJECTIVES WORKSHEET

SITE: **Gas Instruction Area**

PROJECT: **Former Schilling Air Force Base**

Site Objective [a]					Data Needs	Data Collection Methods	Data User(s)	Project Objective Classification [d]
Number	Executable Stage [b]		Description	Source [c]				
	Current	Future						
1	Yes		Determine presence/lack thereof of CWM and CA/ABPs	ASR, DGM, Environmental Samples	Is there any CAIS or CA/ABPs? If so what type, where and hazard posed. Current and future LU.	DGM, Environmtental sampling	Risk and Remedy Perspectives	Basic

a Refer to EM 200-1-2, Paragraph 1.2.2

b Refer to EM 200-1-2, Paragraph 1.2.5

c For example, Meeting with Customer/stakeholder/Regulator, documents.

d Classification of project objectives can only occur after the current project has been identified. Refer to EM 200-1-2, Paragraph 1.3.3.

ASR - Archives Search Report

CA/ABP - Chemical Agent/ Agent Breakdown Product

CAIS - Chemical Agent Identification Set

CWM - Chemical Warfare Materiel

DGM - Digital Geophysical Mapping

LU - Land Use

APPENDIX F
SAFETY PLAN – SALINA AIRPORT AUTHORITY PROPERTY

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SAFETY PLAN
SALINA AIRPORT AUTHORITY PROPERTY
SALINA, KANSAS
For the
JUNE 2010 CWM Site Inspection

Purpose: This Safety Plan has been prepared in support of the field activities being conducted on Salina Airport Authority (SAA) property by Parsons under U.S. Army Corps of Engineers contract W912DY-04-D-0005. The purpose is to provide information so that personnel conducting field work can drive unescorted within the airport operations area (AOA) on SAA property.

Access Points: Field personnel are authorized to access the Salina Municipal Airport (SMA) perimeter road only using gate S-9 (see attached figure for location). Field personnel will check-out gate access cards when they check-in with SAA personnel.

Authorized Areas: Within the AOA, field personnel are authorized to drive only on the perimeter road. The only exception will be at locations where personnel need to drive off the perimeter road for a short distance to access investigation area. In those cases, field personnel will evaluate the off-road conditions to ensure there will be no problems with traffic ability due to wet soil, etc. Field personnel will also be aware that areas within the AOA are leased for agricultural activities and vehicles will not be driven through cultivated fields.

Field personnel will have a copy of this Safety Plan and the accompanying figure in their possession when on the AOA.

Other procedures include:

- Speed within the AOA will not exceed 20 MPH
- Do not park on Perimeter Road
- Operate hazard lights
- Farming tenants and emergency vehicle have the right-of-way
- Be aware of drop-offs around culverts and waterways.
- Remove all trash and no smoking within the AOA

Unauthorized Areas: Under no circumstances will field personnel drive off the perimeter road (except to access the investigation area) or on aircraft movement areas. **Field personnel will not, under any circumstances, drive on runways, taxiway, or active ramp areas.**

Communications: Field personnel will need the ability to communicate the SAA personnel. Cellular phones can be used for this purpose. If cellular service is unavailable, then a radio will be check out from SAA personnel for us by the filed crew. Phone numbers for SAA points of contact are provided below.

Vehicle Description: Field personnel will provide SAA personnel with a complete description of their field vehicle when checking in. The vehicle will have company placards on the cab doors. Crew will use either emergency flashers or a roof-mounted strobe-light to ensure vehicle visibility while in the AOA.

Check-In/Check-Out Procedures: Before conducting any work within the AOA, the field crew will

check in with SAA personnel. If the field crew has not been on the AOA previously, they will require a familiarization briefing from SAA personnel prior to working unescorted. Gate access cards and a radio (if required) will also be issued by SAA during check-in.

Field personnel will check out with SAA personnel upon completion of work within the AOA. Gate access cards and a radio (if issued) will also be returned at this time.

Duration of Need for Access: Upon check-in, the field crew will provide SAA personnel with a schedule of their access requirements for work within the AOA. The field crew will also keep SAA personnel informed of any changes in their access requirements as field work progresses.

Points of Contact:

Name	Representing	Phone Number
Kenny Biecker	Salina Airport Authority	785-827-3914
David “Gunner” Wiles	Salina Airport Authority	785-827-3914
Paula Henderson	USACE	256-895-1269
Lindsey Miller	USACE	256-895-1267
Chris TenBraak	Parsons	303-764-1923

Legend

CWM Investigation Area

Access Route

0 490 980 1,960 Feet

Image Source: 2006 Aerial
Projection: NAD 83 UTM Zone 14N

N

Figure F.1

Salina Municipal Aiport Access
Schilling Air Force Base
FUDS Project # B07KS0256
Salina, Kansas

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FINAL
STANDARD OPERATING PROCEDURES

CHEMICAL WARFARE MATERIEL SITE INSPECTIONS FOR MULTIPLE SITES

Prepared For:

U.S. ARMY CORPS OF ENGINEERS
HUNTSVILLE CENTER

Contract No. W912DY-04-D-0005
Delivery Order No. 0011

Prepared By:

PARSONS
5390 Triangle Parkway, Suite 100
Norcross, Georgia 30092

September 2006

Jimmy Duncan **Project Manager:**	Jimmy Duncan (Signature)	9/8/06 (Date)
John Chulick **QA Reviewer:**	John Chulick (Signature)	9/8/06 (Date)

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FINAL

PERSONAL PROTECTIVE EQUIPMENT

PERSONAL PROTECTIVE EQUIPMENT

1.1 INTRODUCTION

1.1.1 This personal protective equipment (PPE) plan specifies procedures to protect personnel from safety and health hazards when performing field operations. This plan addresses U.S. Army Corps of Engineers PPE requirements contained in Section 5 of the USACE *Safety and Health Requirements Manual* (EM 385-1-1, 3 Nov 2003) and OSHA requirements as specified in 29 CFR 1910.132 (*Personal Protective Equipment).*

1.1.2 The purpose of PPE is to shield, isolate, or secure individuals from hazards that may be encountered when administrative or engineering controls are not feasible or cannot provide adequate protection. Engineering controls anticipated for this project may include the use of backhoe cabs in conjunction with PPE during excavation at locations suspected of containing chemical surety agent.

1.1.3 The selection of the appropriate PPE is a complex process that takes into consideration a variety of factors. Key factors involved in this process are the identification of suspected hazards; their routes of exposure (inhalation, skin absorption, ingestion, and eye or skin contact); and the performance of the PPE materials in providing a barrier to these hazards. The anticipated levels of protection are outlined below. Compliance with the PPE selection requirements will be enforced by the SSHO.

1.2 PROTECTIVE ENSEMBLES

Descriptions of the PPE ensembles and project-specific applications are provided in the Work Plan.

1.3 INSPECTIONS AND TESTS

1.3.1 Daily Inspections

1.3.1.1. A pre-use inspection of PPE should be performed by the worker prior to entering a hazardous area. Visually inspect for:

- Cracked air lines;
- A fully-charged escape SCBA;
- Worn buckles, cracked straps, and cracked lens in facepiece;
- Imperfect seams in clothing;
- Non-uniform coatings;
- Pinholes in clothing;

- Malfunctioning closures (such as zippers);
- Tears; and
- Other defects.

1.3.1.2. Some flexible materials may stiffen during extended storage periods. Flex the product and observe for surface cracks and other signs of shelf life deterioration. During the course of work, each worker or a partner ("buddy") should periodically inspect his/her protective clothing for:

- Tears or rips;
- Seam discontinuities; and
- Closure (zipper) failure.

1.3.2 Repair or replace damaged or deteriorated PPE immediately.

It is especially important to understand all aspects of PPE use and operation and the limitations of fully-encapsulating ensembles, as misuse could result in suffocation. During equipment use, workers should be encouraged to report any perceived problems or difficulties to the SSHO. These malfunctions may include, but are not limited to:

- Degradation of the protective ensemble;
- Perception of odors;
- Skin irritation;
- Unusual residues on PPE;
- Discomfort;
- Resistance to breathing;
- Fatigue due to respirator use;
- Interference with vision or communication;
- Unusual/unbearable restriction of movement; and
- Personnel responses such as rapid pulse, nausea, and chest pain.

1.3.3 Weekly pressure test of encapsulating suits

Prior to each test, the SSHO shall perform a visual inspection of the suit. Check the suit for seam integrity by visually examining and gently pulling seams. Ensure that all air lines, fittings, visor, zippers, and valves are secure and show no signs of deterioration.

- Seal off the vent valves along with any other normal inlet or exhaust points (such as umbilical air line fittings or face piece opening) with tape or other appropriate means (caps, plugs, fixture, etc.). Care should be exercised in the sealing process not to damage any of the suit components.
- Close all closure assemblies.

- Prepare the suit for inflation by providing an improvised connection point on the suit for connecting an airline. Attach the pressure test apparatus to the suit to permit suit inflation from a compressed air source equipped with a pressure indicating regulator. The leak tightness of the pressure test apparatus should be tested before and after each test by closing off the end of the tubing attached to the suit and assuring a pressure of three inches water gauge for three minutes can be maintained. If a component is removed for the test, that component shall be replaced and a second test conducted with another component removed to permit a complete test of the ensemble.
- The pre-test expansion pressure (A) and the suit test pressure (B) shall be supplied by the suit manufacturer, but in no case shall they be less than: (A) = 3 inches water gauge and (B) = 2 inches water gauge. The ending suit pressure (C) shall be no less than 80 percent of the test pressure (B); i.e., the pressure drop shall not exceed 20 percent of the test pressure (B).
- Inflate the suit until the pressure inside is equal to pressure (A), the pre-test expansion suit pressure. Allow at least one minute to fill out the wrinkles in the suit. Release sufficient air to reduce the suit pressure to pressure (B), the suit test pressure. Begin timing. At the end of three minutes, record the suit pressure as pressure (C), the ending suit pressure. The difference between the suit test pressure and the ending suit test pressure (B - C) shall be defined as the suit pressure drop.
- If the suit pressure drop is more than 20 percent of the suit test pressure (B) during the three minute test period, the suit fails the test and shall be removed from service.
- Results of pressure testing will be documented in the SSHO field logbook.

1.4 WORK MISSION DURATION

In selecting PPE, it is important to consider the anticipated duration of the work mission. Several factors may limit the mission length, including equipment effectiveness, and ambient temperature.

1.4.1 Suit/Ensemble Permeation, Degradation, and Penetration

1.4.1.1. The possibility of chemical permeation, degradation, or penetration of protective ensembles during the work mission is always a matter of concern and may limit mission duration. Possible causes are suit valve leakage, because of excessively hot or cold temperatures or improper maintenance, and exhalation valve leakage at excessively hot or cold temperatures.

1.4.1.2. Also, when considering mission duration, it should be remembered that no single clothing material is an effective barrier to all chemicals or all combinations of chemicals, and no material is an effective barrier to prolonged chemical exposure.

1.4.2 Ambient Temperature

1.4.2.1. The ambient temperature may have a major influence on work mission duration as it affects both the worker and the protective integrity of the ensemble. Heat stress, which can occur even in relatively moderate temperatures, presents the greatest immediate danger to an ensemble-encapsulated worker. Hot and cold ambient temperatures also can affect:

- Valve operation on suits and/or respirators;
- Durability and flexibility of suit materials;
- Integrity of suit fasteners;
- Breakthrough time and permeation rates of chemicals; and
- Concentration of airborne contaminants.

1.4.2.2. All of these factors may decrease the duration of protection provided by a given piece of clothing or respiratory equipment. The work duration will be closely monitored and controlled by the SSHO.

1.5 STORAGE AND MAINTENANCE OF PPE

1.5.1. Maintenance of PPE will only be conducted in accordance with the manufacturer's instructions and only by personnel that have received proper instruction in the maintenance of the PPE. Replacement parts will be those provided by the manufacturer and at no time will pieces from different brands of PPE be used to “fix” a defective piece of PPE. PPE used inside the EZ shall be cleaned in accordance with the documented decontamination procedures. This cleaning will involve the use of one or more decontamination solutions and a fresh water rinse, and all re-usable PPE should be dried, or hung to dry, and stored in a clean environment, free from exposure to chemicals, dust, moisture, sunlight or extreme temperatures. Storage of PPE will include storing in such a way that the natural shape of the PPE is not compromised.

1.5.2. Clothing and respirators must be stored properly to prevent damage or malfunction due to exposure to dust, moisture, sunlight, damaging chemicals, extreme temperatures, and impact. Many equipment failures can be directly attributed to improper storage.

1.5.3. Different types of clothing and gloves should be stored separately to prevent issuing the wrong material by mistake. Protective clothing should be folded or hung in accordance with manufacturer's recommendations.

1.5.4. Reusable clothing (encapsulated suits, outer gloves, and chemical resistant boots) must be thoroughly decontaminated before being reused. Suits should be hung in a well-ventilated area in the decontamination trailer. Gloves should be bagged and placed in the dress-out area of the trailer along with the reusable boots. Never store these materials near street clothing and never wear protective clothing off-site.

1.5.5. Supplied-air respirators and air-purifying respirators should be dismantled, washed, and disinfected after each use. Facepieces should be stored individually in their

original cartons or carrying cases, or in re-sealable plastic bags.

1.6 TRAINING AND PROPER FITTING

The SSHO or other qualified person will train Parsons employees and subcontractors in the proper use of protective equipment prior to field operations. At a minimum, the training should explain the user's responsibilities and should address the following issues, utilizing both classroom lecture and field simulation:

- OSHA and COE PPE requirements;
- The proper use and maintenance of the selected PPE, including capabilities and limitations;
- The nature of the hazards and the consequences of not using the PPE;
- Instruction inspection, donning, doffing, decontaminating, checking, fitting, and using the selected PPE;
- The user's responsibility (if any) for decontamination, cleaning, maintenance, and repair of PPE; and
- Emergency procedures and self-rescue in the event of PPE failure.

1.7 PPE PROGRAM EVALUATION

At a minimum, the PPE program should be reviewed monthly by the SSHO to evaluate the effectiveness of the following factors:

- Number of personnel-hours that are spent in various PPE ensembles;
- Degree to which the program complies with HAZWOPER and USACE requirements on PPE use, inspection, maintenance, and recordkeeping;
- Accident, injury, and illness statistics, and recorded levels of exposure;
- Adequacy of operating procedures to guide the selection of PPE; and
- Recommendations for and results of program improvement and modification.

FINAL

MEDICAL SURVEILLANCE, CONTROL/ACCESS TO EMPLOYEE MEDICAL RECORDS, AND EMERGENCY CARE

MEDICAL SURVEILLANCE, CONTROL/ACCESS TO EMPLOYEE MEDICAL RECORDS, AND EMERGENCY CARE

2.1 INTRODUCTION

The medical surveillance program is a major element in the Parsons Health and Safety Program. The three major components of the medical surveillance program are: (1) routine medical monitoring of the health of Parsons personnel whose work may expose them to health hazards, (2) arrangements for emergency medical care in the event of a work-related injury, and (3) maintenance of employee medical records.

2.2 MEDICAL SURVEILLANCE

2.2.1 Enrollment Criteria

2.2.1.1 A medical examination is essential to assess and monitor a worker's health and fitness both before placement and during the course of work. The criteria for medical surveillance enrollment are dependent upon the employee's exposure potential. An employee whose work involves the regular, potential exposure to toxic substances or physical agents above established short term exposure limits (STELs), OSHA permissible exposure limits (PELs), OSHA action levels, or American Conference of Governmental Industrial Hygienist (ACGIH) threshold limit values (TLV) shall be enrolled in the medical surveillance program. Examples of operations where employee enrollment would be necessary include.

- Field investigations or remedial operations at gasoline stations or bulk storage terminals;
- Field investigations in a designated exclusion zone;
- Work requiring respirator usage;
- Laboratory use of hazardous substances;
- Asbestos or lead sampling or abatement;
- Stack sampling and source evaluation operations; and
- Industrial wastewater and process water characterization surveys.

2.2.1.2 An employee assigned to a task where there is no reason to believe there is a potential for exposure above STELs, OSHA PELs, OSHA action levels, or ACGIH TLVs would be exempt from the medical surveillance program. Examples of exempted operations would include the following:

- Project management oversight from support zone;
- Property transfer audits where there is no environmental sampling;
- Laboratory operations confined to dip and read tests; and
- Ecological surveys.

2.2.2 Medical Oversight Contractor

Parsons has hired a medical oversight contractor (MOC) to manage its medical surveillance program. The MOC is Medical Services Network (MSN), 2625 Cumberland Parkway, Suite 320, Atlanta, Georgia 30339, phone: 800-874-4676. The responsibilities of the MOC are:

- Develop medical examination protocols specific to Parsons operations;
- Contract local clinics;
- Issue employee medical reports to the Facility Health and Safety Representative;
- Track personnel enrolled in medical monitoring program; and
- Archive employee medical and exposure records.

The MOC provides Parsons with consistency in examination content and quality.

2.2.3 Clinic Selection

The Parsons MOC or the Facility Health and Safety Representative will perform initial clinic selection. Only after MOC approval may the clinic be used by Parsons. The Corporate Health and Safety Manager, Mr. Edward Grunwald, is co-located in the Norcross office and can be contacted with questions concerning medical monitoring at (678) 969-2394. The clinic used for medical monitoring and records maintenance for the Parsons Norcross office is located in Norcross, Georgia and operated by MSN (800) 874-4676.

2.2.4 Pre-Placement Screening

All employees who will be involved in the medical surveillance program will have an initial physical examination before assignment to work requiring regular health monitoring. The pre-placement screening has two major functions: (1) to determine the employee's fitness for duty, including the ability to work while wearing protective equipment and (2) to establish a baseline physiological profile for comparison with future medical data. The physical examination will be given by an approved clinic and will follow the examination protocol established by the MOC. For those Parsons employees working on the project, the MOC has been asked to review Department of Army Pamphlet 40-173, Occupational Guidelines for the Evaluation and Control of Occupational Exposure to Mustard Agents H, HD, and HT. The MOC will add additional medical tests or exams as appropriate.

2.2.5 Periodic Examinations

Physical examinations are repeated annually for personnel involved in HAZWOPER projects. Records of project personnel working on this project will be checked to ensure that periodic examination has occurred within the last year.

2.2.6 Termination Examination

A physical examination shall be performed as a part of the checkout procedure for terminating employees. The content of this examination shall comply with the protocol established by the MOC. For this project, each Parsons employee who works on-site will also receive a project termination physical as directed by the MOC – in accordance with DA Pamphlet 40-173.

2.2.7 Special Examination

Special medical examinations and counseling will be provided in cases of known or suspected exposure to a toxic substance above its occupational exposure limit. The Project Health and Safety Officer and Corporate Health and Safety Manager must approve special testing after consulting the MOC physician.

2.2.8 Information Provided to the Examining Physician

Each employee participating in the medical surveillance program will present to the examining physician a completed History and Physical Form at the time of the examination. The History and Physical Form is designed to elicit information necessary for the physician to understand the employee's past and current health status. Additionally, the form provides an opportunity for the employee to express possible concerns about his or her occupational environment.

2.2.9 Medical Examination Reports

2.2.9.1 Data obtained during the examination is sent to the MOC physician for analysis. After reviewing the data, the MOC physician submits a report to the Parsons Norcross Office Health and Safety Representative. This report contains the following information:

- Physician's opinion of the employee's fitness to perform their assigned duties;
- Any recommended limitations upon the employee's assigned duties; and
- Statement that the employee has been informed of the physician's findings and of any medical conditions that require further examination or treatment.

2.2.9.2 Additionally, the employee receives a report from the MOC physician that discusses all aspects and findings of the medical examination.

2.2.10 Disposition of Medical Records of Terminated Employees

When an employee leaves Parsons, the MOC shall seal the employee's medical file for archiving. The medical file will be maintained in the custody of the MOC for 30 years after the employee's termination date.

2.2.11 Confidentiality of Reports

The medical report that is submitted to the Office Health and Safety Representative or Corporate Health and Safety Manager shall not reveal any specific findings or diagnoses unrelated to occupational exposures, illnesses, or accidents. The physician's report shall be kept in the custody of the Office Health and Safety Representative in a locked file separate from the employee's personnel records. Access to the physician's report shall be limited to the Corporate Health and Safety Manager and the Office Health and Safety Representative unless authorized in writing by the employee or except where the opinions are required for settlement of workers' compensation claims.

2.2.12 Subcontractor Medical Certification

Subcontractors assigned to work on the project are required to furnish the Project Manager or Project Safety and Health Officer a doctor's certification of each assigned employee's ability to wear personal protective equipment. The certification should be dated not more than 1 year before the employee begins on-site work.

2.3 EXPOSURE MONITORING

2.3.1 A fundamental approach to evaluating and controlling potential workplace hazards is the use of air sampling. This project potentially involves airborne exposures to chemical agent (i.e., mustard and Lewisite, and their breakdown products) and industrial chemicals (e.g., chlorinated solvents).

2.3.2 Airborne monitoring will be conducted by both Parsons and Edgewood Chemical Biological Center (ECBC). Parsons is responsible for perimeter/work area monitoring of volatile organic compounds and ECBC personnel will use an on-site laboratory to analyze various media for the presence of chemical agent. The Site Safety and Health Officer will ensure that all sampling results that may be used to characterize potential worker exposures are recorded and transferred confidentially to the appropriate Parsons or subcontractor Health and Safety representative.

2.3.3 Exposure records (to include non-detections) will be prepared by Site Safety and Health Officer (SSHO). Records will include workers name, social security number if available, and monitoring results (with description of source/equipment used to generate results; time/date; duration of sampling time; type of sample-personal, area or breathing zone; and concentration). Records will be prepared for all measurements that can be used to characterize exposures to site workers.

Exposure sampling results that indicate an over exposure will immediately be brought to the attention of the following:

1. Project Safety and Health Officer - Edward Grunwald, CIH (678) 969-2394;
2. For Parsons personnel, overexposures will be brought to the immediate attention of Dr. Mitchell, MSN - Medical Director at (800) 874-4676 ext. 111.
3. For subcontractor employees with reported overexposures, the Health and Safety Representative or supervisor of the employee must be notified immediately.

2.3.4 For Parsons employees, exposure records are forwarded to MSN representatives for inclusion in employee medical records. MSN representatives authorized to receive exposure records are Ms. Virginia Maddox (800-874-4676, ext. 133) or Ms. Natalie Snyder (800-874-4676, ext. 129). Forwarding the exposure results to MSN serves two functions: (1) it provides MSN occupational physicians with accurate employee exposure information; and (2) it provides Parsons with a central location for the storage of both employee occupational medical records and employee exposure results.

2.4 EMERGENCY MEDICAL CARE

2.4.1 Emergency treatment is integrated into the Emergency Response and Fire Prevention Plan (Section 11 of Appendix D, and Section 6 of this SOP). This plan requires posting of the name, a map showing its location, phone number, and address of the nearest emergency care center. In addition, phone numbers and procedures for contacting fire, police and ambulance services are included in the emergency response portions of this plan. The Emergency Response and Fire Prevention Plan designates roles and responsibilities to be assumed by personnel in an emergency. At least two members of the field team will be currently certified in cardiopulmonary resuscitation (CPR) and first aid.

2.4.2 A map with directions to the nearest medical facility will be posted at the worksite. All personnel working at the site should know the location of the nearest medical facility. The Site Safety and Health Officer will report all incidents requiring emergency medical attention to the Project Safety and Health Officer or Corporate Health and Safety Manager.

2.5 PROGRAM RESPONSIBILITY

The Corporate Health and Safety Manager is responsible for assuring compliance with the medical surveillance program. The Corporate Office Health and Safety Representative is responsible for the scheduling of personnel examinations and for the maintenance of data and reports.

2.6 PROGRAM COSTS

Routine medical monitoring is the responsibility of Parsons, and the company will bear the entire cost of the program. Special, project-specific medical examinations will be included in the project budget.

FINAL

EMERGENCY RESPONSE AND FIRE PREVENTION PLAN

EMERGENCY RESPONSE AND FIRE PREVENTION PLAN

3.1 PRE-EMERGENCY PLANNING

3.1.1 Situations requiring emergency response can be minimized by planning and approaching the circumstances in a calm, deliberate manner.

3.1.2 Agencies that may provide emergency response, such as the Emergency Management Agencies (EMAs), police department, Fire Department and medical support services will receive an operations schedule on a daily or weekly basis.

3.1.3 The SSHO will be the on-site project emergency coordinator (as conditions dictate) in case of an accident or incident requiring emergency response. All personnel will be briefed at the morning tailgate safety meetings the location of the cellular telephones and who has on-site radio communications. This information will also be included in all visitor briefings.

3.1.4 A warning system using a series of three five-second blasts on portable air horns or vehicle horns will notify site personnel that an accident or incident has occurred and evacuation is required. Upon hearing the evacuation warning, all personnel will immediately clear the site and respond to the designated rally point. This rally point will be revised based upon prevailing weather conditions and will be briefed by the SSHO at the morning tailgate safety briefing. At the rally point, all personnel will be accounted for and interviewed to assure no one has sustained injuries because of the accident or incident.

3.1.5 If an emergency response rescue operation is required, no personnel will re-enter the area until the situation has been assessed and it is determined that resources are on-hand to handle the rescue without jeopardizing additional personnel.

3.2 PERSONNEL ROLES AND LINES OF AUTHORITY

3.2.1 This plan describes the various roles, responsibilities, and communication procedures that will be followed by personnel working on this project in the event of an emergency.

3.2.2 The primary On-Site Project Emergency Coordinator for this site is the on-site Parsons SSHO or his designee (Site Manager). The on-site Emergency Coordinator will determine the nature of the emergency and take appropriate action.

3.2.3 Prior to field activities, the Parsons SSHO shall plan emergency egress routes and discuss them with all personnel who will be conducting fieldwork. Initial planning includes establishing and testing emergency warning signals and evacuation routes to prevent delays in the event of an emergency.

3.3 EMERGENCY CONTACTS

Emergency telephone numbers for the closest hospitals capable of providing emergency service, EMAs, Poison Control Center, state environmental agency, local police and fire department, and key safety and management personnel from the COE District, USAESCH, TEU, ECBC, and Parsons will be listed in the Site-Specific Work Plan and will be posted in the field trailer and other conspicuous locations. The SSHO will be responsible for taking necessary action and contacting the appropriate emergency contacts.

3.4 EMERGENCY RECOGNITION AND PREVENTION

Emergencies can take many forms: exposure to chemical warfare agent of various types, illnesses or injuries, chemical exposure, fires, or sudden changes in the weather. The remaining sections of the ERCP outline general emergency and contingency planning procedures to be followed at the sites. Emergency information and instructions shall be posted as appropriate.

3.5 EMERGENCY EVACUATION FROM EXCLUSION AND CONTAMINATION REDUCTION ZONES

Any personnel requiring emergency medical attention shall be evacuated immediately from Exclusion and Contamination Reduction Zones. The decision whether or not to decontaminate a victim prior to evacuation is based on the type and severity of the illness or injury and the nature of the contaminant. For some emergency victims, immediate decontamination may be an essential part of life saving first aid (e.g., victims contaminated with mustard or Lewisite). For others, decontamination may aggravate the injury or delay life saving treatment. If decontamination does not interfere with essential treatment, it should be performed.

3.5.1 If decontamination can be performed:

- Wash external clothing and cut it away.

  NOTE: soap and water will be used to decontaminate injured victims potentially contaminated with mustard or Lewisite.

3.5.2 If decontamination cannot be performed:

- Wrap the victim in blankets or plastic to reduce contamination of other personnel
- Alert emergency and off-site medical personnel to potential contamination; instruct them about specific decontamination procedures
- Send along site personnel familiar with the incident

3.6 FIRST AID

3.6.1 At least two people trained and certified in First Aid/CPR will be present on-site at all times during intrusive activities. Life support techniques such as CPR and treatment of life threatening problems such as shock will be given top priority. Professional medical assistance shall be obtained at the earliest possible opportunity.

3.6.2 To provide first-line assistance to field personnel in the case of illness, injury, or fire the following items will be immediately available:

- First aid kit;
- Portable emergency eye wash and shower;
- Supply of clean water and 5 percent bleach solution;
- Fire extinguisher ;
- Portable spill kit (30 gallon size);
- Air horn; and
- Cellular telephone and 2- way radio

3.7 EMERGENCY ACTIONS

If actual or suspected serious injury occurs, these steps shall be followed:

- Remove the exposed or injured person(s) from immediate danger.
- Render first aid if necessary. Decontaminate affected personnel after critical first aid is given, if chemical agent exposure is suspected.
- Obtain paramedic services or ambulance transport to local hospital. This procedure shall be followed even if there is no visible injury.
- Other personnel in the work area shall be evacuated to a safe distance until the Emergency Coordinator determines that it is safe for work to resume. If there is any doubt regarding the condition of the area, work shall be delayed until all hazard control issues are resolved.
- Notify USAESCH, Parsons Project Manager, and Project Health and Safety Officer. USAESCH will make the required notifications to State and County Agencies.

3.8 EMERGENCY EVACUATION PLAN

3.8.1 General Evacuation Plan

3.8.1.1 In the case of an operational shutdown due to severe weather conditions, or if other hazards exist on-site, the Emergency Coordinator or Site Manager will sound the alarm (three blasts each of five second duration on an air horn). All personnel in the work area will secure their equipment and proceed to the off-site assembly point, located a safe distance (designated at morning safety meeting) at an upwind location from the

site. The Emergency Coordinator or his alternate will obtain the site entry/exit logs to ensure that all personnel have been safely evacuated. The Site Manager will coordinate with the Emergency Coordinator to determine when it is safe to re-enter the site and resume work.

3.8.1.2 In the general case of a large fire, explosion, or toxic vapor release, a site evacuation shall be ordered and the following steps implemented:

- Sound the alarm (three blasts each of a five-second duration on an air horn), notify appropriate emergency response agencies, and advise USAESCH and Parsons project management personnel.
- Evaluate downwind impact in order to assist emergency response agencies. All personnel will evacuate in the upwind direction.
- All personnel will assemble in an upwind area when the situation permits, and a head count will be taken.
- Determine the extent of the problem. Dispatch a response team in protective clothing and self-contained breathing apparatus on-site to evacuate any missing personnel (when conditions do not endanger safety of rescue personnel) and to correct the problem.

3.8.2 Evacuation Signals and Routes

3.8.2.1 Two-way radio communication, direct voice communication, or an air-horn (three blasts - each of five seconds duration) will be used to notify employees of the necessity to evacuate an area involved in a release/spill of a hazardous material. Each work location will have a two-way radio. A two-way radio will be in the Parsons Emergency Coordinator's office trailer to monitor for emergencies. Total site evacuation will be initiated only by the Emergency Coordinator. However, in his absence, the decision to preserve the health and safety of employees will take precedence.

3.8.2.2 Evacuation routes will be discussed and described in tailgate safety meetings. The route to the hospital will be posted in each work area using a portable plywood backboard. Periodic drills (before each new phase of work) will be conducted to familiarize each employee with the proper routes and procedures.

3.8.3 Evacuation Procedures

In the event evacuation is necessary, the following actions will be taken:

- The alarm will be activated.
- No further entry of visitors, contractors, or trucks will be permitted. Vehicle and equipment traffic within the site will cease to allow safe exit of personnel and movement of emergency equipment.
- Shut off all machinery and equipment, if safe to do so.

- All on-site personnel, visitors, and contractors in the Support Zone will assemble at the office trailer, or other designated area, for a head count and wait for further instructions from the Emergency Coordinator.
- Upon completion of the head count, the senior person will provide the information to the Emergency Coordinator.
- Visitors will also be accounted for.
- A final tally of persons will be made by the Emergency Coordinator or his designee. No attempt will be made to find persons not accounted for if the rescue attempt involves endangering the lives of employees.
- Personnel will be assigned by the Emergency Coordinator to be available at the main entrance point to direct and brief emergency responders.
- Re-entry into the site will be made only after clearance has been given by the Emergency Coordinator. At his direction, a signal or other notification will be given for re-entry into the facility.
- Drills will be held at the beginning of the intrusive fieldwork and at intervals during the intrusive work. Drills will be treated with the same seriousness as an actual emergency.

3.9 EMERGENCY ALERTING AND RESPONSE

To minimize hazards to the environment or to human health, the procedures listed below are to be implemented in the event of a spill or discharge involving a hazardous substance. It is the responsibility of on-site employees to report any such emergencies to the on-site Emergency Coordinator who will be responsible for implementing emergency response procedures.

3.9.1 Initial Notification

- STEP 1: Notify appropriate management personnel in the following order until one of these people are contacted. Senior ranking person will take over responsibilities when they arrive.

  Contact

  1st. Parsons Site Manager
  2nd. Parsons SSHO
  3rd. Parsons UXOQC

- STEP 2: If the emergency coordinator determines that assistance is needed to respond to the emergency, he/she can notify the appropriate personnel. The Emergency Contact List will be posted onsite.
- STEP 3: If the on-site Emergency Coordinator determines that a spilled material is “in such quantity or concentration as may be harmful or poses a foreseeable risk of harm to public health or welfare or to natural resources,” the coordinator will immediately notify the appropriate personnel.

- STEP 4: The USAESCH Project Representative will be notified immediately and given a copy of the spill report within 48 hours. He/she will be advised concerning all notification and response actions. Depending on type of spill, it may be necessary to notify the state environmental agency. Determinations as to reportable quantities for specific chemicals or materials will be obtained by the Site Manager from the state environmental agency. The state environmental agency notification will be accomplished after notifying USAESCH and following emergency response actions.
- STEP 5: The on-site emergency coordinator will contact the National Response Center (800-424-8802) when a hazardous substance is released in excess of the reportable quantity.

3.10 EMERGENCY SERVICES

All personnel shall be provided concise and clear directions and accessible transportation to local emergency services. A map outlining directions to the nearest hospital will be posted on-site.

3.10.1 Emergency Equipment

In the decontamination area, an emergency equipment station will be present. This station will consist of a combination emergency eye wash station and emergency shower, first aid kit, two-way radio, cellular phone, emergency alarm (e.g., air horn), and a fire extinguisher. Each station will be prominently marked. Each piece of heavy equipment, site trailer, and each vehicle will be equipped with a fire extinguisher.

3.10.2 Critique of Response and Follow-up

All response actions will be evaluated for effectiveness by SSHO and Site Manager. Corrective actions will be communicated to personnel and procedures will be revised as required.

3.11 SPILL INCIDENT REPORTS

A written report detailing the spill or discharge shall include, at a minimum, the cause and resolution of the incident, the date the incident occurred, and any outside agencies involved. The report shall be submitted to the USAESCH within 48 hours of the incident.

3.11.1 Special Notifications and Procedures in the Event of a Spill

Additional notifications, including emergency telephone numbers, if needed, for local, state, and federal agencies which may require notification are included in the Notification Plan kept onsite.

- If the incident threatens human health or the environment outside of the project site boundaries, the emergency coordinator will notify the local Police Department first, then the local Fire Department, and the Emergency

Management Agency. Assistance will be provided to these organizations to determine if public evacuation is necessary.

- If a reportable quantity of a hazardous material is released off-site, the Emergency Coordinator will notify the National Response Center (800-424-8802). The following information will be provided to the National Response Center:
  - Name and telephone number
  - Name and address of facility
  - Time and type of incident
  - Name and quantity of materials involved, if known
  - Possible hazards to human health and/or the environment outside of the facility
- If hazardous waste has been released or produced through control of the incident, ensure that:
  - Waste is collected and contained
  - Containers of waste are removed or isolated from the immediate site of the emergency
  - Treatment or storage of the recovered waste, contaminated soil or surface water, or any other material that results from the incident or its control is provided
  - Ensure that all emergency equipment used is decontaminated, recharged, and ready for use before site operations are resumed

3.12 FIRE PREVENTION AND CONTINGENCY MEASURES

3.12.1 Because flammable materials are present at this site, fire is an ever-present hazard. Parsons and subcontractor personnel are not trained professional fire fighters. Personnel will attempt to extinguish incipient (early) stage fires using portable fire protection equipment. Therefore, in the event of any fire that cannot be extinguished using portable extinguishers, personnel will notify the Emergency Coordinator by radio and evacuate the area. The Emergency Coordinator will immediately notify the local Fire Department.

3.12.2 The following procedures will be used to prevent the possibility of fires and resulting injuries.

- Sources of ignition will be kept away from areas where flammable materials are handled or stored.
- The air will be monitored for explosive vapors before and during hot work and periodically where flammable materials are present, and during confined space work. Hot work permits will be required for all such work.

- Fire extinguishers will be placed in all areas where a fire hazard may exist.
- Before workers begin operations in an area, the senior person will give instruction on egress procedures and assembly points.

3.12.3 The following procedures will be used in the event of a fire:

- Anyone who sees a fire will notify his or her Supervisor who will then contact the Emergency Coordinator by radio. Portable fire extinguishing equipment will be used to the extent practicable or the Emergency Coordinator will activate the emergency alarm (three blasts for site evacuation) and notify the local Fire Department.
- When the emergency alarm sounds, workers will disconnect electrical equipment in use (if possible) and proceed to the nearest exit point/assembly area.
- Work crews will be comprised of pairs of workers (buddy system) who join each other immediately after hearing the fire alarm and remain together throughout the emergency. Workers will assemble at the assembly point for the site for a head count.
- When a small fire has been extinguished, the Emergency Coordinator will be notified.

3.13 HAZARDOUS WEATHER CONTINGENCY MEASURES

3.13.1 The Emergency Coordinator will be responsible for assessing hazardous weather conditions (i.e., high winds, tornado, etc.) and notifying personnel of specific contingency measures. Notifications will include:

- Parsons employees, subcontractors, and visitors
- USAESCH Project Manager and the USAESCH Site Safety

3.13.2 Operations will not be started or continued when the following hazardous weather conditions are present:

- Lightning
- Heavy Rains/Snow
- High Winds (>40 mph)

3.13.3 The response to these conditions includes the following actions:

- Excavation/soil stockpiles will be covered with visqueen barricades and will be placed along perimeter of open excavation.
- All equipment will be shut down and secured to prevent damage.
- Personnel will be moved to safe refuge, initially crew trailers. The Emergency Coordinator will determine when it is necessary to evacuate personnel to off-site locations.

3.14 CHEMICAL SPILLS OR RELEASES

The occurrence of chemical leaks or spills is anticipated to be remote, due to the preventative measures implemented on the site and the nature of the contaminated materials present. There is, however, a potential for the occurrence of spills or leaks (to include the potential for RCWM) during excavation operations or due to spills from fuels, oils, etc., used in servicing heavy equipment. Salvage drums, spill containment, and sorbent material will be available for personnel to respond in the event that such a release should occur. Safe handling procedures will be implemented in order to minimize the handling required to over-pack the drums and stage them in a designated area. The following actions will be taken in the event of a release of any chemical, fuel, or contaminated water at the site:

- **Small Quantity Spill:** This will be defined as 25 gallons or less of liquid material. Before responding, make sure personnel are in the appropriate level of protection. Use sorbent material as necessary to effect cleanup, and containerize all liquids and debris. Make sure the incident is immediately reported to the USAESCH Project Manager and USAESCH Site Safety.
- **Large Quantity Spill:** This will be defined as over 25 gallons of liquid material. Immediate notification will be made to the Site Manager and USAESCH Project Manager and USAESCH Site Safety. The Site Manager will direct efforts to contain and mitigate the spill, as well as coordinate with the USAESCH Project Manager and local officials to determine if additional notification or area evacuation is required. The SSHO and ECBC personnel (if necessary) will be responsible for performing air monitoring.

3.15 SPILL PREVENTION AND CONTROL PROCEDURES

3.15.1 During site preparation, primary staging areas will be constructed. Proper bermed and lined staging areas will reduce the amount of cleanup required as a result of spills or leaking drums.

3.15.2 A sufficient supply of appropriate emergency response cleanup and personal protective equipment will be visually inventoried and inspected on a weekly basis by the SSHO.

3.15.3 The materials listed below will be kept on-site for spill control. The majority of this material will be located in the support zone inside a supply trailer. Small quantities of appropriate materials may be placed on pallets and located in the active work areas.

- Sand or clay to solidify/adsorb liquid spills.
- Five percent bleach solution to decontaminate chemical agent.

The following equipment will be kept on-site and dedicated for spill cleanup:

- Sausage-shaped absorbent booms for diking liquid spills, drains, or sewers;

- Sorbent sheets (diapers) for absorbing liquid spills;
- Over-pack drums for containing leaking spills; and
- Fifty-five gallon open-top drums for containing waste materials.

3.15.4 All contaminated soils, absorbent materials, solvents, and other materials resulting from the cleanup of spilled or discharged substances will be properly stored, labeled, and disposed of off-site.

3.16 CHEMICAL SPILL CONTINGENCY MEASURES

In the event of release or spill of a hazardous material the following measures will be taken immediately:

- Administer first aid to injured/contaminated personnel. Any person observing a spill or release will act to remove and/or protect injured/contaminated persons from any life-threatening situation. First aid and/or decontamination procedures will be implemented as appropriate.
- Warn unsuspecting person/vehicles of the hazard. All personnel will act to prevent any unsuspecting persons from coming in contact with spilled materials by alerting other nearby persons.
- Stop the spill at the source, if possible. This may involve activities such as uprighting a drum, closing a valve, or temporarily sealing a hole with a plug.
- Using radio communications, notify the Emergency Coordinator of the spill/release, including information on material spilled, quantity, personnel injuries, and immediate life threatening hazards.
- Follow procedures outlined earlier for the notification of proper on-site personnel and off-site agencies.

3.16.1 Containment and Control Measures

3.16.1.1 The Emergency Coordinator will make a rapid assessment of the spill/release and direct confinement, containment and control measures. Depending upon the nature of the spill, measures may include, but not be limited to:

- Constructing a temporary containment berm using on-site clay absorbent earth.
- Digging a sump, installing a polyethylene liner, and diverting the spill material into the sump placing drums under the leak to collect the spilling material before it flows over the ground.
- Transferring the material from its original container to another container.

3.16.1.2 Supplies necessary to clean up a spill will be immediately available on-site. Such items may include, but are not limited to: backhoe or trackhoe, shovel, rake, clay absorbent, polyethylene liner, personal safety equipment, and miscellaneous hand tools. The major supply of material and equipment will be located in a supply trailer in the

Support Zone. Smaller quantities of supplies will be kept at active work locations for emergencies.

3.16.2 Cleanup Inspection and Notification

3.16.2.1 The Emergency Coordinator/Site Manager will jointly inspect the spill site to determine that the spill has been cleaned up. If necessary, soil, water or air samples may be taken and analyzed to demonstrate the effectiveness of the spill clean-up effort.

3.16.2.2 The Emergency Coordinator will determine the cause of the spill and determine remedial steps to ensure that recurrence is prevented. The Emergency Coordinator will review the cause with the SSHO, PSHO, and USAESCH Project Manager and obtain concurrence with the remedial action plan.

3.17 TRANSPORTATION SPILL INCIDENTS

Spillage resulting from site transportation incidents will be immediately reported to the Emergency Coordinator, who will send personnel to contain and clean up the spill (if possible without risk to personnel). Any soils contaminated by the spill incident will be removed and processed as described in Section 12 of the Site 8 Work Plan.

3.18 FIRE AND AIRBORNE RELEASE PROCEDURES

3.18.1 The following preventative measures will be implemented to minimize the potential for airborne chemical release and fire incidents:

- Operate the intrusive excavation and trenching operations in accordance with the Site 8 Work Plan (Section 2) and the APP (Appendix D) for these sites.
- Perform air monitoring activities to evaluate airborne releases of chemical agent and industrial chemicals.

3.18.2 In addition, the following fire prevention measures will be implemented on site:

- Sources of ignition other than heavy equipment will be prohibited inside the Exclusion Zone during intrusive activities.

3.19 CHEMICAL AGENT OR RELEASE REPORTING

3.19.1 A Chemical Event Report, RCS: CSGPO-453 (an example will be kept on site) must be made within three hours of the occurrence of any one of the following (per AR 50-6):

- Any detection of agent outside a munition body or bulk storage container which is confirmed by other positive detections;
- Discovery of an actual or suspected chemical agent – filled munition or container that may require emergency transportation or disposal;

- Actual or suspected exposure of personnel to an agent above the allowable limits contained in AR 385-61, DA PAM 40-8 or DA PAM 40-173; or
- Any of the above occurrences involving items configured as weapons containing chemical agents or industrial chemicals: chloropicrin, chloracetophenone, chloroform, phosgene, or fuel components (benzene, ethylbenzene, xylene, toluene).

3.19.2 If it appears that Chemical Event Reporting may be needed, the USAESCH Safety Specialist or the following USAESCH personnel should be notified immediately:

- Charles Twing: (256) 895-1543
- Wilson Walters: (256) 895-1578; and
- Wayne Galloway: (256) 895-1582.

3.19.3 The Site Manager, SSHO or UXOQC should be prepared to provide the information requested in the Chemical Event Report.

FINAL

HAZARD COMMUNICATION PROGRAM

HAZARD COMMUNICATION PROGRAM

4.1 INTRODUCTION

4.1.1 The OSHA Hazard Communications Standard (29 CFR 1910.1200) was promulgated to ensure that all chemicals would be evaluated and information regarding the hazards associated with these chemicals would be communicated to employers and employees. The goal of the standard is to reduce the number of chemically related occupational illnesses and injuries.

4.1.2 In order to comply with the OSHA Hazard Communication Standard, this written program has been established by Parsons for work at Site 8. All Parsons and subcontractor personnel working at the site are included in this program. A copy of this written program will be maintained at the office trailer for inspection by employees.

4.2 HAZARDOUS CHEMICAL INVENTORY LIST

The SSHO will maintain an inventory of hazardous chemicals brought to the site (fuels, oils, solvents, etc). The inventory should include the chemical identity, quantity, and storage location. For each chemical identified on the inventory list there should be a corresponding MSDS. Subcontractors must understand that they are required to inform the SSHO whenever they import hazardous chemical on-site.

4.3 HAZARD DETERMINATION

The most hazardous chemicals potentially present at Site 8 are agents (mustard and lewisite). Phosgene, cyanogen chloride, adamsite, tri-phosegene, chloroform and chlororacteophenone in container or in chemical munitions may also be present along with solvent used at Site 8. MSDSs for these compounds will be maintained on-site and be available at the site trailer.

4.4 MATERIAL SAFETY DATA SHEETS (MSDS)

4.4.1 MSDSs are prepared by manufacturers or producers to provide specific information on the safety precautions and health effects of a particular chemical or mixture. MSDSs contain at a minimum the following information:

- Chemical and common names;
- Physical and chemical characteristics;
- Physical hazards;
- Health hazards;
- Primary routes of entry;

- Exposure limits;
- Carcinogenic potential;
- Handling and protective precautions;
- Control measures;
- Emergency and first aid procedures;
- Date of MSDS preparation; and
- Name and address of manufacturer.

4.4.2 When chemicals are ordered, the Site Manager or his designee will specify on the purchase order that chemicals are not to be shipped without corresponding MSDSs. When chemicals and MSDSs arrive, the SSHO or his designee will review them for completeness. If any MSDS is incomplete, a letter or FAX will be sent immediately to the manufacturer requesting the additional information. Parsons or its subcontractors will not accept any shipped chemical without an MSDS.

4.4.3 A complete file of MSDSs for all on-site hazardous chemicals will be kept in the office trailer on site. When an MSDS is discovered as missing the Site or Project Safety and Health Officer will obtain a replacement MSDS from the manufacture.

4.5 LABELS AND OTHER FORMS OF WARNING

4.5.1 The Hazard Communication Standard requires that manufacturers label the hazardous chemicals they produce. The label must contain the following:

- Chemical identity;
- Appropriate warnings; and
- Name and address of manufacturer, importer, or other responsible party.

If the labels are incomplete or missing, Parsons personnel will refuse the shipment.

4.5.2 When chemicals are transferred from the manufacturer's containers to secondary containers, the Site Manager or SSHO will ensure that the secondary containers are labeled with the identity of the chemicals and appropriate hazard warnings. Labels for secondary containers can be obtained from the SSHO.

4.5.3 The labeling procedure will be periodically reviewed by the SSHO and changed as necessary.

4.6 EMPLOYEE INFORMATION AND TRAINING

4.6.1 Prior to starting work, Parsons personnel and subcontract employees will attend a site specific health and safety training course. This course will include Hazard Communication Training and will be performed by the Site Safety and Health Officer. The format will be classroom training.

Training Topics

- An overview of the requirements of the Hazard Communication Standard
- The labeling system and how to use it
- How to review MSDS and where they are kept
- Chemicals present in work operations
- Properties and characteristics of chemical warfare agents
- Physical and Health effects of hazardous chemicals
- Methods and observation techniques used to determine the presence or release of hazardous chemicals in the area
- Personal protective equipment and work practices to reduce or prevent exposure to chemicals
- Steps to be taken to prevent or reduce exposure to chemicals
- Safety-emergency procedures to follow if exposure occurs
- Location and availability of written program/MSDSs

4.6.2 Following the training session(s), each employee will sign and date the training record.

4.6.3 Additional training may be provided by the SSHO when new chemicals are imported to the site. Records of additional training will be maintained by the SSHO.

4.7 PROGRAM REVIEW

This written hazard communications program will be reviewed by the SSHO and/or PSHO on a monthly basis and updated as necessary.

Reviewed and Approved by:

Project Safety and Health Officer: _____
Ed Grunwald

Site Manager: _____

Site Safety and Health Officer: _____

FINAL

HEARING CONSERVATION PROGRAM

HEARING CONSERVATION PROGRAM

5.1 INTRODUCTION

The purpose of this Hearing Conservation Program is to provide protection for employees from adverse health effects associated with occupational exposure to noise. The program consists of: annual audiometric testing of workers, annual employee training, selection and use of hearing protection, and noise monitoring. All Parsons employees and subcontractors must comply with this program.

5.2 AUDIOMETRIC TESTING PROGRAM

5.2.1 Audiometric testing shall be made available to all employees whose exposures equal or exceed an 8-hour time - weighted average of 85 decibels, or sudden, repetitious noise (i.e. drill rig hammer), maximum 120 decibels. Audiometric tests shall be performed by a licensed or certified audiologist, otolaryngologist, or physician who is certified by the Council of Accreditation in Occupational Hearing Conservation. Each employee assigned to noisy operations must receive a baseline audiogram prior to assignment and yearly testing thereafter for as long as that employee is exposed to excessive noise levels (8-hour time-weighted average of 85 decibels or greater). Each employee's annual audiogram is compared to that employee's baseline audiogram to determine if the audiogram is valid and if a standard threshold shift has occurred. (A standard threshold shift is a change in hearing threshold relative to the baseline audiogram of an average of 10 dB or more at 2,000, 3,000, and 4,000 Hz in either ear.) This comparison should be done by a physician.

5.2.2 If a comparison of the annual audiogram to the baseline audiogram indicates a standard threshold shift has occurred, the employee shall be informed of this fact in writing, within 21 days of the determination. The following steps are taken by the SSHO when a standard threshold shift occurs:

- Employees not using hearing protectors shall be fitted with hearing protectors, trained in their use and care, and required to use them.
- Employees already using hearing protectors shall be refitted and retrained in the use of hearing protectors and provided with hearing protectors offering greater attenuation if necessary.
- The employee shall be referred for a clinical audiological evaluation or an otological examination, as appropriate, if additional testing is necessary.
- The employee is informed of the need for an otological examination if a medical pathology of the ear that is unrelated to the use of hearing protectors is suspected.

5.2.3 Audiometric tests shall be pure tone, air conduction, and hearing threshold examinations, with test frequencies including as a minimum 500, 1000, 2000, 3000, 4000, and 6000 Hz. Tests at each frequency shall be taken separately for each ear. Audiometric tests shall be conducted with audiometers (including microprocessor audiometers) that meet the specifications of, and are maintained and used in accordance with, American National Standard Specification for Audiometers, S3.6-1969. The functional operation of the audiometer shall be checked before each day's use by testing a person with known, stable hearing thresholds, and by listening to the audiometer's output to make sure that the output is free from distorted or unwanted sounds. Audiometer calibration shall be checked acoustically at least annually in accordance with OSHA requirement (29 CFR 1910.95 Appendix E)

5.3 HEARING PROTECTORS

The SSHO shall make hearing protectors available to all Parsons and subcontract employees exposed to an 8-hour time-weighted average of 85 decibels or greater or sudden, repetitious noise (i.e. drill rig hammer), maximum 120 decibels. Hearing protection for this project will consist of earmuffs or foam fitting earplugs. The selection of hearing protector will be based upon noise attenuation requirements for the task and worker comfort.

5.4 EMPLOYEE TRAINING

The SSHO will develop a hearing conservation training program for all employees assigned to noisy work. This training will be a component of the initial site safety training. As a minimum, the training shall consist of:

- The effects of noise on hearing.
- The purpose of hearing protectors, the advantages, disadvantages, and attenuation of various types, and instructions on selection, fitting, use, and care.
- The purpose of audiometric testing, and an explanation of the test procedures.

5.5 NOISE MONITORING

5.5.1 When operations are anticipated to exceed the 8-hour time-weighted average of 85 decibels, the SSHO shall implement a noise-monitoring program. The sampling shall be used to:

- Verify that appropriate hearing protection is being used by employees
- Identify the boundaries of the noise hazard area in accordance with Section 05.C.07 of EM 385-1-1.

5.5.2 Noise level monitoring instruments used to measure employee noise exposure shall be calibrated to ensure accuracy.

FINAL

FIRE FIGHTING PLAN

SECTION 6
FIRE FIGHTING PLAN

6.1 Purpose

The purpose of this Fire Fighting Plan is to define the general procedures to protect human health and the environment both in the event of a fire at the site.

6.2 Sources

Although fires and explosions may arise spontaneously, they are more commonly the result of carelessness during the conduct of site activities, such as moving drums, mixing/bulking of site chemicals, and during refueling of heavy or hand held equipment. Some potential causes of explosions and fires include:

- Mixing of incompatible chemicals, which cause reactions that spontaneously ignite due to the production of both flammable vapors and heat.
- Ignition of explosive or flammable chemical gases or vapors by external ignition sources.
- Ignition of materials due to oxygen enrichment.
- Agitation of shock or friction-sensitive compounds.
- Sudden release of materials under pressure.

6.3 Immediate Action

6.3.1 Upon detecting a fire/explosion, employees will determine whether the fire is small enough to readily extinguish with immediately available portable extinguishers or water, or if other fire-fighting methods are necessary. Non-essential personnel will be directed away from the area of the fire. If it is judged that a fire is small enough to fight with available extinguishing media, employees will attempt to extinguish the fire provided that:

- They are able to approach the fire from the upwind side, or opposite to the direction of the fire's progress.
- The correct extinguisher is readily available. (Type ABC fire extinguishers will be provided in work areas and on vehicles.)
- No known complicating factors are present, such as the likelihood of rapid spread, imminent risk of explosion, or gross contamination.

6.3.2 Personnel leaving a fire/explosion area will account for all employees in that work area as soon as possible. The SSHO or designee will perform a head count for that work area.

6.4 Notification

The SSHO will be notified as soon as possible of the location, size, and nature of the fire/explosion. As conditions dictate, the SSHO will declare an emergency, initiate the remedial procedures, request assistance from the Fire Department by dialing 911, and make the necessary telephone notifications to the USAESCH SS and USAESCH PM. Outside personnel responding to the fire/explosion may seek assistance from the SSHO with regard to the routing of equipment within the incident site to the most favorable and safe position while minimizing and/or avoiding exposure to any site contaminants.

6.5 Rescue

If employee(s) are unable to evacuate themselves from a fire/explosion area for any reason, their rescue will be the first priority of responders. The SSHO will determine whether on-site resources are sufficient to proceed, or if rescue must be delayed until the Fire Department responders arrive.

6.6 Fire Protection

6.6.1 To ensure adequate fire protection, the SSHO will inspect the site to ensure all flammable and combustible materials are being safely stored in appropriately configured storage areas and containers. The SSHO will also ensure that no flammable/combustible materials are stored near any sources of ignition, and that sources of ignition are located a safe distance from storage areas. If needed, storage areas will be segregated from the remainder of the site using flagging.

6.6.2 Explosions and fires not only pose the obvious hazards of intense heat, open flames, smoke inhalation, and flying objects, but may also cause the release of toxic chemicals into the environment. Such releases can threaten both personnel on-site and members of the public living or working nearby. Site personnel involved with potentially flammable material or operations shall follow the guidelines listed below and EM 385 1-1 to prevent fires and explosions:

- Potentially explosive/flammable atmospheres involving gases or vapors shall be monitored using a combustible gas indicator.
- Prior to initiation of site activities involving explosive/flammable materials, all potential ignition sources shall be removed or extinguished.
- Non-sparking and explosion-proof equipment shall be used whenever the potential for ignition of flammable/explosive gases/vapors/liquids exists.
- Dilution or induced ventilation may be used to decrease the airborne concentration of explosive/flammable atmospheres.
- Smoking shall be prohibited at, or near, operations that may present a fire hazard, and the area shall be conspicuously posted with signs stating “No Smoking or Open Flame within 50 Feet.”
- Flammable and/or combustible liquids must be handled only in approved, properly labeled containers equipped with flash arrestors and self-closing lids.

- Transfer of flammable liquids from one metal container to another shall be done only when the containers are electrically bonded if capacity is greater than 5 gallons; otherwise, the containers are kept in metallic contact.
- The motors of all equipment being fueled shall be shut off during the fueling operations.
- Metal drums used for storing flammable/combustible liquids shall be equipped with self-closing safety faucets, vent bung fittings, grounding cables and drip pans, and shall be stored outside buildings in an area approved by the SSHO.

6.7 Decontamination

At the conclusion of fire fighting activities, the SSHO will:

- Determine, to the extent practical, the nature of the contaminants encountered during the incident.
- Equipment not easily decontaminated shall be labeled and isolated for further action, such as determining specific contaminants by wipe sampling or awaiting the delivery of specific decontamination media and supplies.

16.8 Fire Extinguisher Information

6.8.1 The four classes of fire, along with their constituents, are as follows:

Class A - Wood, cloth, paper, rubber, many plastics, and ordinary combustible materials.
Class B - Flammable liquids, gases, and greases.
Class C - Energized electrical equipment.
Class D - Combustible metals such as magnesium, titanium, sodium, and potassium.

6.8.2 Examples of proper extinguishing agents are as follows:

Class A - Water or ABC Dry Chemical
Class B - ABC Dry Chemical
Class C - ABC Dry Chemical
Class D - Metal-X Dry Chemical (not anticipated and not on-site.)

FINAL

LOCKOUT/TAGOUT PROGRAM

LOCKOUT/TAGOUT PROGRAM

7.1 INTRODUCTION

7.1.1 Objective

This procedure shall be used by Parsons and subcontractor personnel to ensure that the machine or equipment being worked on is isolated from all potential hazardous energy sources, and locked out or tagged out before an employee performs any servicing or maintenance activity where the unexpected energization, start-up, or release of energy could cause an injury. Energy sources can be electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.

7.1.2 Purpose

This procedure establishes the minimum safety requirements to ensure the proper deactivation of movable, electrically energized, pressurized equipment and systems; and systems containing hazardous materials prior to repairing, cleaning, oiling, adjusting, or similar work. This procedure complies with the requirements in 29 CFR 1910.147.

7.1.3 Requirements

This procedures applies to all equipment that receives energy from electrical power, hydraulic fluid under pressure, compressed air, steam, energy stored in springs, potential energy from suspended parts, or any other source that may cause unexpected movement when it is necessary to perform work on that system. It also applies to similar functions performed on systems containing hazardous materials.

7.1.4 Definitions

Lockout - The placement of a lockout device on an energy isolating device, in accordance with this procedure, is ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed. The lockout device can be key operated or a combination device.

Tagout - The placement of a tagout device on an energy isolating device, in accordance with this procedures, is to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed by the authorized person who originally placed the tagout device in position.

Authorized employee - A person who locks or implements a tagout system procedure on machines or equipment to perform the servicing or maintenance on that machine or equipment.

7.2 LOCKOUT/TAGOUT STEPS

Prior to initiating any repairs, modifications, and/or adjustments to operating equipment, these steps will be followed:

1. The immediate supervisor with jurisdiction over the equipment and all affected employees will be notified that the energy sources are to be deactivated.
2. All sources of power that must be locked out, blocked, or released will be identified by the immediate Supervisor and the employee who will work on the equipment.
3. In order to ensure that the equipment cannot be re-energized while maintenance activities are performed, the employee will lockout/blank out all potential energy sources. (Employees will be assigned padlocks with their names or identification numbers affixed to the locks. The locks will be individually keyed to prevent another employee from removing the lock inadvertently.) If more than one employee is assigned to work on the equipment, a multi-lockout hasp will be used so that all employees working on the equipment can apply their locks and ensure their safety.
4. A tagout device will be affixed to all components or systems de-energized to indicate that lockout has been performed.
5. After the servicing and/or maintenance is complete and the equipment is ready for normal operations, check the area around the machine or equipment. After all tools have been removed from the machine or equipment, guards have been reinstalled, remove all lockout or tagout devices. Operate the energy isolating devices to restore energy to the machine or equipment.

7.3 SPECIAL CONDITIONS

7.3.1 During certain operations it may be necessary to energize the equipment for a short period of time. Employees in the immediate area will be notified and directed to stay clear of the equipment. If the equipment is to be deactivated again, the employee should repeat steps 3 to 5 of this procedure before work resumes.

7.3.2 If the work is completed and a lock remains on the equipment, it shall not be removed until the employee responsible for the lock is found or the supervisor of the employee investigates and ascertains that the equipment is safe to operate. Unauthorized removal of a lock will subject the violator to disciplinary action up to dismissal.

7.4 TRAINING

Initial and annual training will be given to all employees to ensure that the purpose and function of this energy and control program are understood.

7.5 PERIODIC INSPECTION

The Site Safety and Health Officer will conduct an annual audit of the energy control program to ensure that the requirements of these procedures are being followed. A record of annual audits will be kept to comply with the requirement for periodic inspections.

FINAL

ELECTRICAL SAFETY

ELECTRICAL SAFETY

8.1 INTRODUCTION

8.1.1 Objective

Parsons and subcontract personnel working on electrical systems and equipment at this site will follow standards set by the National Electrical Code (NEC) and OSHA. Only qualified personnel will be permitted to work on electrical systems and equipment.

8.1.2 Purpose

This procedure specifies the requirements for electrical equipment and methods and is an overview of the requirements of 29 CFR 1926, Subpart K-Electrical. If work is to be performed on any electrical circuit, lockout/tagout may be required. Refer to the Lockout/Tagout procedure SOP. Fieldwork at Site 8 will involve work at temporary facilities and will use temporary electrical systems. To prevent electrical shocks electrical safety must be emphasized.

8.2 GENERAL REQUIREMENTS.

- No electrical work is done on an energized circuit.
- Only approved, qualified electricians are permitted to work on electrical equipment or electrical wiring.
- Use proper clearance and grounding procedures. All electrical circuits and equipment is de-energized and locked out before maintenance or repair work is started.
- Single-phase electric hand tools and other single-phase portable electrical equipment must be approved by a recognized testing agency, and all exposed non-current-carrying metal parts must be grounded or double insulated.
- Before each use, portable electrical tools are to be examined for obvious defects in the appliance, cord, and plug. If any deficiency is noted, the tool is not to be used.
- Extension cords are to be kept clean, dry, free of kinks, and protected from oil, hot or sharp surfaces, and chemicals. Extension cords used outdoors shall be equipped with Ground Fault Circuit Interrupters (GFCI) and rated for outdoor use.

8.3 PORTABLE ELECTRICAL EQUIPMENT

- Portable electrical tools not provided with grounding protection are not to be used on-site.

- Portable electrical appliances and equipment with non-current-carrying metal parts that can contact personnel shall be grounded by a continuous conductor from the device to a grounded receptacle. The SSHO shall resolve any questions that arise as to whether or not a particular appliance should be grounded.
- Grounding of receptacles shall be accomplished in one of two ways:
  - A built-in ground wire of green color may be attached to the ground pole of the receptacle.
  - The conduit system, if installed in an approved manner, may be relied upon for grounding of a receptacle serving single phase appliances with ratings up to 230 volts.

  At outside locations, all single-phase 15 and 20 ampere receptacle outlets (operating at 230 volts or less) which are not a part of the permanent wiring of the building or structure must have GFCI for personnel protection. The GFCI should be located at the power source so that all extension cords and tools are protected by the GFCI.
- The outlet box for portable extension cords for outdoor use shall be of weatherproof type maintained in good condition.

8.4 ELECTRICAL GUARDING

- Suitable access and working space shall be provided and maintained about all electric equipment to permit ready and safe operation and maintenance.
- The dimensions of the access and working space around energized parts in switchboards, control panels, fused switches, circuit breakers, panel boards, motor controllers, and similar equipment (which require examination, adjustment, servicing, or maintenance while energized), shall not be less than 36” in depth (30” for installations built prior to 1981) and 30” wide or the width of the equipment, whichever is greater.
- The access and working space shall not be used for storage purposes. The “keep clear” area may be identified with suitable markings and/or posting of signs or decals on the equipment.
- Energized parts of electrical equipment operating at 50 volts or more shall be guarded against accidental contact by the use of approved cabinets or enclosures.
- Entrance to rooms and other guarded location containing exposed energized parts shall be marked with a conspicuous warning sign forbidding unqualified persons to enter.
- Temporary covers, warning signs, and/or barricades are to be used when it is necessary to remove covers of electrical panels during construction, major refurbishment, or for the purpose of providing temporary power to an area.

- All openings in boxes, enclosures, or fittings shall be effectively guarded or closed to afford protection substantially equivalent to that of the wall of the box, enclosure, or fitting.
- All electrical components over 230 volts shall have signs stating "High Voltage."

8.5 EXTENSION CORD REQUIREMENTS

- Use of indoor extension cords greater than 50 feet in length is to be discouraged. All extension cords shall include a grounding conductor within the cable jacket and shall be equipped at each end with either explosion-proof or non-explosion-proof three-wire, grounded receptacles and plugs (but not with one of each), depending on the location and intended use. (No "hybrid," ungrounded or external ground wire extension cords are allowed.)
- If a cord is damaged, it shall be shortened or replaced by an electrician - never patched with electrical tape.
- Cords shall be protected against contact with oil, hot surfaces, and chemicals.
- Cords must not be hung over nails or other sharp edges or places where vehicles may run over them.

8.6 ELECTRICAL FUSE REQUIREMENTS

- Circuits must be de-energized by lockout and tagout procedures before attempting to replace fuses.
- Bridging of fuses or circumventing the normal operation of circuit breakers is prohibited.
- Blown fuses shall not be replaced with fuses having a higher amperage or voltage rating. Fuses should be replaced in kind to maintain proper circuit protection.
- Use a fuse puller to remove fuses.

8.7 ASSURED ELECTRICAL GROUNDING REQUIREMENTS

- This program provides the minimum requirements for an assured equipment grounding conductor program and reflects the requirements of 29 CFR 1910.304. It also applies to circuits and equipment not attached to a permanent building or structure.
- Parsons and its Subcontractors will implement either a written assured equipment grounding conductor program or use GFCI's when using temporary wiring (cords and plugs) in field work using any temporary electrical power source.
- Cords and equipment will be inspected prior to each use for damage or missing parts. Equipment that is found to be defective will be taken out of service and repaired.

- If an Assured Equipment Grounding Conductor Program is used it shall include the following:
  - This written program.
  - Designation of a competent person(s) – Site Safety and Health Officer – to implement the program.
  - Visual inspection of cords on a daily basis for deformed and missing pins, insulation damage, and indications of possible internal damage. Equipment found damaged or defective will be removed from service and repaired or expended.
  - Cords and electrical circuits will be tested for the following:
    - ◊ Electrical grounding continuity
    - ◊ Correct attachment of grounding conductor
  - Tests outlined above shall be performed before the first use, before being returned to use after repair, after possible damage (such as being run over by a vehicle), and at least every three months.
  - The tests outlined above must be recorded in the Health and Safety logbook along with the ID of the cords that were tested.

FINAL

SEVERE WEATHER OPERATIONS

SEVERE WEATHER OPERATIONS

9.1 PURPOSE

The purpose of this procedure is to provide the minimum requirements and site personnel actions in the event of site evacuation, as a result of severe weather at any Parsons Field operation.

9.2 SCOPE

This SOP applies to all site personnel involved in field operations regardless of affiliation. This SOP is not intended to contain all of the requirements needed to ensure complete compliance, and should be used in conjunction with project plans and applicable Federal, state and local regulations. Consult the documents listed in Section 9.3 of this SOP for additional compliance issues.

9.3 REFERENCES

Applicable sections and paragraphs in the documents listed below will be used as references for the conduct of Severe Weather operations:

- Parsons Corporate Safety and Health Program;
- EP 385-1-95a, CEHNC Basic Safety Concepts and Considerations for OE Operations;
- EM 1110-1-4009, Ordnance and Explosive Response; and
- EM 385-1-1, USACE, Safety and Health Requirements Manual

9.4 RESPONSIBILITIES

9.4.1 Site Safety and Health Officer (SSHO)

Upon notification that a severe weather situation exists, the SSHO will notify site personnel, by radio, cellular phone or sound a horn for 3 five-second blasts. If operations, that might put site personnel at risk, are on going at the time, either the SSHO or USACE On-Safety Representative will cease all operations and have all teams/crews evacuate to either the site office or the closest “Safe Haven.”

The SSHO will direct site personnel as to the nature of severe weather and to ready site vehicles for evacuation. During this type of emergency, site personnel should not be concerned with assigned vehicles. Time permitting, a select number of site personnel will attempt to safely secure mission essential equipment (e.g. Geophysical GPS/Radio Relay Systems, RTK GPS Systems, computers, etc.) and prepare to evacuate

the area to the recommended "Safe Haven." The SSHO will maintain radio communications with all site personnel, necessary support elements and record the events in the site Safety Log.

Upon arrival at the "Safe Haven," the SSHO will conduct a head count of all site personnel and Site Visitors, using that day's Daily Safety Brief Sign-In Roster and Site Visitors Log.

9.4.2 Individual/Personnel initially reporting Severe Weather

The individual or personnel initially spotting a severe weather situation (lightning, tornado) will immediately report it to either the SSHO or USACE On-Safety Representative by the quickest means possible.

9.4.3 Site Personnel

Upon the notification to evacuate the work site for the designated Rally Point, site personnel will do so in an orderly manner. Vehicle operators will not exceed the posted or site enforced speed limit, unless directed by USACE On-Site Safety Representative; however that speed will not exceed the conditions of the roadway.

9.4.4 USACE On-Site Safety Representative

Severe weather occurring before normal working hours, the USACE Site Safety Representative will decide whether a work delay is required and notify the SSHO. The SSHO will begin a site recall procedure with all site section supervisors, who will in turn notify their personnel.

9.5 GENERAL INFORMATION

Parsons field operations may be conducted at either heavily wooded sites, or sites that consist of large rolling and sloping pastures and grasslands, consisting of clay or loose sand, and some even contain large areas of ravines and drop-offs. As a result of this, even small amounts of rain could cause vehicle entry/exit problems and personnel slipping hazards that may result in damage or injury to site personnel and equipment.

Most areas are susceptible to severe thunderstorms, with heavy downpours of rain, lightning, hail, strong microburst winds, flash floods and tornadoes. These storms are known to manifest themselves very quickly and leave very little time to react. In the event of severe weather in the area, the SSHO maintains a portable Severe Weather Alert radio and the Site Manager will have access to the National Weather Advisory system, via the internet or by phone.

9.5.1 Thunderstorms

Thunderstorms affect relatively small areas when compared with hurricanes and winter storms. Despite their small size, ALL thunderstorms are dangerous. The typical thunderstorm is 1.5 miles in diameter and lasts an average of 30 minutes. In order for a thunderstorm to form it needs three things; Moisture – to form clouds and rain; Unstable Air – warm air that can rise rapidly; and Lift – cold or warm fronts, sea breezes, mountains, or the sun's heat are capable of lifting air to help form thunderstorms.

The life cycle of a thunderstorm constitutes three distinct stages, which are detailed below:

- Developing Stage – Towering cumulus cloud indicates rising air; little if any rain during this stage; and occasional lightning.
- Mature Stage – Most likely time for hail, heavy rain, frequent lightning, strong winds, and tornadoes; storm occasionally has a black or dark green appearance; and lasts an average of 10 – 20 minutes but may last much longer in some cases.
- Dissipating Stage – Rainfall decreases in intensity; can still produce a burst of strong winds; and lightning remains a danger.

9.5.1.1 How Far Away is the Thunderstorm?

- Count the number of seconds between a flash of lightning and the next clap of thunder.
- Divide the number of seconds by five (5) to determine the distance to the lightning in miles.

9.5.2 Lightning

Lightning poses the greatest potential threat to site personnel and site operations, due to its unpredictable nature. Lightning results from the buildup and discharge of electrical energy between positively and negatively charged areas. Rising and descending air within a thunderstorm separates these positive and negative charges. Water and ice particles also effect distribution.

A cloud-to-ground lightning strike begins as an invisible channel of electrically charged air moving from the cloud toward the ground. When one channel nears an object on the ground, a powerful surge of electricity from the ground moves upward to the clouds and produces the visible lightning strike.

In accordance with current USACE policies, all operations cease when lightning is observed and the "Flash to Bang Time" is 30 seconds or less (approx 6 miles from site). The safe evacuation of personnel is paramount and equipment is secondary.

Those site personnel in and around the site office will seek shelter inside the building. Site personnel working out in the field will seek shelter inside a site vehicle with the windows rolled up and the doors closed.

Site personnel that are using any electronic equipment with an antenna (i.e. RTK system, G-858 or EM-61, etc.) will cease all operations and seek shelter upon visually seeing lightning at any distance.

9.5.2.1 30/30 Lightning Safety Rule

- Go indoors or seek shelter if, after seeing lightning, you cannot count to 30 before hearing thunder.
- Stay indoors or under shelter for 30 minutes after hearing the last clap of thunder.

9.5.2.2 Lightning Safety Rules

- Move to a sturdy building or car. Do not take shelter in small sheds, under isolated trees, or in convertible automobiles. Stay away from tall objects such as towers, fences, telephone poles, and power lines.
- If lightning is occurring and a sturdy shelter is not available, get inside a hard top automobile and keep the windows up. Avoid touching any metal.
- Utility lines and metal pipes can conduct electricity. Unplug appliances, office machines etc. not necessary for obtaining weather information. Avoid using the telephone or any electrical item. Use phones **ONLY** in an emergency.

9.5.2.3 If Caught Outdoors and No Shelter is Available

- Find a low spot away from trees, fences, and poles. Make sure the place you pick is not subject to flooding.
- If you are in the woods, take shelter under the shorter trees.
- If you feel your skin tingle or your hair stand on end, squat low to the ground on the balls of your feet. Place your hands over your ears and your head between your legs. Make yourself the smallest target possible and minimize your contact with the ground. **DO NOT** lay down.

9.5.3 Tornadoes

Tornadoes produce extreme high destructive winds and devastation. Tornadoes are generally produced along the leading edges of thunderstorms that form, with little or no warning. Before thunderstorms develop, a change in wind direction and an increase in wind speed with increasing height create an invisible, horizontal spinning effect in the lower atmosphere. Rising air within the thunderstorm updraft tilts the rotating air from horizontal to vertical. An area of rotation, 2 – 6 miles wide, now extends through much of the storm. Most tornadoes form within this area of strong rotation.

Most project sites do not afford adequate tornado “Safe Havens,” or adequate “Safe Havens” are so far away that they afford little or no help to those site personnel working in remote site locations.

The SSHO and Site Manager will attempt to locate those “Safe Havens” and brief site personnel of their locations, during the Daily Tailgate Safety Briefing.

9.5.3.1 When and Where Tornadoes Occur

- Tornadoes can occur any time of the year.
- Tornadoes have occurred in every state, but they are most frequent east of the Rocky Mountains during the spring and summer months.
- In the southern states, peak tornado occurrence is March – May, while peak months in the northern states are during the late spring and summer.

- Tornadoes are most likely to occur between 3 and 9 p.m., but can occur anytime.

- The average tornado moves from southwest to northeast.

- Tornadoes can accompany tropical storms and hurricanes as they move onto land.

9.5.3.2 Tornado Safety Rules

- In a building, move to a pre-designated shelter, such as a basement.

- If a below ground shelter is not available, move to a small interior room or hallway on the lowest floor and get under a sturdy piece of furniture. Put as many walls as possible between you and the outside.

- Stay away from windows.

- Get out of automobiles.

- Do not try to outrun a tornado in your car; instead, leave it immediately for safe shelter.

- If caught outside or in a vehicle, lie flat in a nearby ditch or depression and cover your head with your hands.

- Be aware of flying debris. Flying debris from tornadoes causes most fatalities and injuries.

- Office trailers, even if tied down, offer little protection from tornadoes. You should leave an office trailer and go to the lowest floor of a sturdy nearby building, or follow the procedures detailed in the 6th bullet above.

9.5.4 Flash Floods/Floods

Due to the massive amounts of rain that can be dropped from thunderstorms, the site may be susceptible to flash floods. Some of the existing roads may be unimproved dirt and are easily turned into mud, creating an unsafe driving environment. Those roadways that are paved also place the vehicle in low-lying areas that may be washed out. Do not attempt to cross any roadway that has become submerged by water.

9.5.4.1 Flash Flood/Flood Safety Rules

- If you are in a low lying area, at the first sign of rain evacuate to high ground.

- Designate an evacuation route in the event of flooding.

- Avoid walking or driving in flood waters.

- Stay away from high water, storm drains, ditches, ravines, or culverts. If the water is moving swiftly, even water only six (6) inches deep can knock you off your feet.
- If you come upon flood waters, stop, turn around, and go another way.

9.5.5 Straight-line/High Winds

When this is associated with a passing front generating potential severe weather, the winds can increase in speed rather rapidly. Dust and debris pose an eye hazard. High winds can rip vehicle doors and rear hatches from site personnel's grasp causing damage and injury. Site personnel in the field should select an area or park the vehicle in such a matter that provides a windbreak. If this can not be accomplished, open doors and hatches with care. Vehicles should not be left with doors, hoods or hatches open.

9.5.5.1 Straight-line/High Winds Safety Rules

- In a building, move to a pre-designated shelter, such as a basement.
- If a below ground shelter is not available, move to a small interior room or hallway on the lowest floor and get under a sturdy piece of furniture. Put as many walls as possible between you and the outside.
- Stay away from windows.
- If caught outside, lie flat in a nearby ditch or depression and cover your head with your hands.
- Be aware of flying debris. Flying debris from tornadoes causes most fatalities and injuries.
- Office trailers, even if tied down, offer little protection from straight-line/high winds. You should leave an office trailer and go to the lowest floor of a sturdy nearby building, or follow the procedures detailed in the 4th bullet above.
- Move to a sturdy building or car. Do not take shelter in small sheds, under isolated trees, or in convertible automobiles.
- If high winds are occurring and a sturdy shelter is not available, get inside a hard top automobile and keep the windows up.

9.5.6 Hail

Hail can occur in conjunction with a thunderstorm and can cause damage to equipment and injuries to personnel. Hail occurs when strong rising currents of air within a storm, called updrafts, carry water droplets to a height where freezing occurs. These water droplets become frozen and the ice particles grow in size, becoming too heavy to be supported by the updraft, and fall to the ground. Speeds of the falling ice particles, hail, can exceed 100 miles an hour, with size exceeding that of a softball.

9.5.6.1 Hail safety Rules

- Seek shelter, preferably in a building, or hard-top automobile.
- If in the open seek shelter in a culvert if there is no flooding under a rock outcrop or under trees if there is no lightning associated with the hail storm.
- Exercise caution when driving on hail, it is very slippery, so avoid it if at all possible.
- If driving when a hail storm starts pull under an overpass if possible, if not pull well off the road with your lights on in order that advancing motorists can see you.

FINAL

HEAVY EQUIPMENT AND VEHICLE SAFETY

HEAVY EQUIPMENT AND VEHICLE SAFETY

10.0 INTRODUCTION

Motor vehicle usage presents the most significant work risk to employees. The United States Bureau of Labor Statistics indicates that motor vehicle deaths and injuries continue to be the number one cause of work-related death and serious injury. Accordingly, it is essential that an effective vehicle safety program be instituted for each worksite.

This section establishes requirements for safe operation of vehicles and heavy equipment. Vehicles are defined as any automobile (car, truck, or otherwise) used on the project to transport personnel or haul equipment to, around, and from the site. Heavy equipment refers to backhoes, track hoes, skid loaders, forklifts, or any other piece of heavy machinery used to move equipment or for excavation. This procedure is an overview of the guidelines in the proposed OSHA Motor Vehicle Safety Standard 29 CFR 1910.140 and incorporates regulations from EM 385-1-1.

10.1 OBJECTIVE

The objective of this document is to outline requirements and safe practices for operation of heavy equipment and vehicles.

10.2 PURPOSE

This document provides information and procedures in order for personnel to operate heavy equipment and vehicles safely.

10.3 REFERENCES

Procedures and information contained in this document were obtained from the below listed references:

- USACE EM 385-1-1, Safety and Health Requirements Manual;
- USACE EP 385-1-95a, Basic Safety Concepts and Considerations for Ordnance and Explosives Operations;
- USACE EP 1110-1-18, Engineering and Design;
- OSHA Regulation 29CFR1926, Subpart P, Appendix A and 29CFR1926.652, Subpart P, Appendix F, Safety and Health Requirements for Construction;
- AR 385-55, Prevention of Motor Vehicle Accidents;

- DA Pam 385-16, System Safety Engineering and Management; and
- Parsons I & T Policies and Procedures for Health and Safety

10.4 RESPONSIBILITIES

10.4.1 Driver/Operator.

The driver of contractor owned, rented, or leased vehicles or heavy equipment is responsible for:

- Operating the motor vehicle while in possession of a valid driver's license;
- Operating the vehicle in a safe and legal manner;
- Refraining from eating, drinking, smoking, or using a cellular telephone while the vehicle is in motion;
- The safety of passengers; and
- Reporting immediately any motor vehicle that is found to be defective or not operating properly.

10.4.2 Site Safety and Health Officer.

The Site Safety and Health Officer (SSHO) is responsible for the following:

- Ensuring that all vehicle accident reports are processed and the required number of copies submitted to local, state, and federal agencies, to the resource manager and to the insurance carrier.
- Ensuring that appropriate individuals, beginning with the Project Safety and Health Officer, and the Corporate Health and Safety Manager are notified by telephone of accidents that involve fatalities or multiple serious injuries.
- Verifying that all accidents are documented and investigated. The investigation should be of sufficient depth to determine the cause and action required to prevent recurrence. Copies of all motor vehicle investigations shall be forwarded to the Project Safety and Health Officer and the Corporate Health and Safety Manager.
- Ensuring that during the selection process for leased or purchased vehicles, consideration is given to obtaining vehicles with essential safety devices. Such devices include anti-locking brakes, air bags, both front and rear seat shoulder harnesses, and all season traction tires. Motor vehicles must be equipped with first aid kits. Shoulder safety belts must not be attached to doors.

10.4.3 Inspections.

Before initial use, equipment not otherwise inspected by State or local authorities will be inspected by a qualified mechanic and found in safe operating condition. The inspection will be documented in writing and available upon request.

The vehicle and heavy equipment operators are responsible for inspecting their equipment daily to assure that the following parts, equipment, and accessories are in safe operating condition and free of apparent damage that could cause failure while in use:

- Service brakes, including trailer brake connections;
- Parking system (hand brake);
- Emergency stopping system (brakes);
- Tires;
- Horn;
- Steering mechanism;
- Coupling devices;
- Seat belts;
- Operating controls;
- Accessories including lights, reflectors, windshield wipers, and defrosters where such equipment is necessary; and
- Safety devices.

Records of inspection and maintenance will be kept at the site and available upon request. All vehicles operated during the night will have the following lights:

- Two headlights, one on each side of the front;
- At least one red taillight and one red or amber stoplight on each side of the rear;
- Directional signal lights (both front and back); and
- Three emergency flares, reflective markers, or equivalent portable warning device.

10.4.4 Brake systems.

All vehicles, except trailers having a gross weight of 5,000 pounds or less will be equipped with service brakes and manually operated parking brakes. Service and parking brakes will be adequate to control the movement of, to stop, and to hold the vehicle under all conditions of service. Service brakes on trailers and semi-trailers will be controlled from the driver's seat of the prime mover. Braking systems on every combination of vehicle will be designed in approximate synchronization on all wheels and develop the required braking effort on the rear-most wheels first. The design will also provide for application of the brakes by the driver of the prime mover form the cab. The only exception is vehicles in tow by an approved tow bar hitch.

10.4.5 Required equipment.

All motor vehicles (cars and trucks) will have the following equipment:

- An operable speedometer;
- An operable fuel gage;

- An operable audible warning device (horn) in operating condition;
- A windshield equipped with an adequate windshield wiper;
- An operable defrosting and defogging device;
- An adequate rear view mirror or mirrors;
- Cabs, cab shields, and other protection to protect the driver from the elements and falling or shifting materials;
- Non-slip surfaces on steps; and
- A power-operated starting device

Glass in windshields, windows, and doors will be safety glass. Any cracked or broken glass will be replaced.

10.4.6 Defects

All defects shall be corrected before the vehicle is placed in service. These requirements also apply to equipment such as lights, reflectors, windshield wipers, defrosters, fire extinguishers, etc., where such equipment is necessary.

10.5 SEAT BELTS

OSHA has determined that the use of seat belts in motor vehicles can significantly reduce the seriousness of occupational motor vehicle accidents. Accordingly, all contractor employees driving motor vehicles on this project (including rental cars, pick-up trucks, personal vehicles which are used for company compensated business travel, etc.) shall ensure that all occupants use seat belts, both shoulder and lap belts.

10.6 STATE AND LOCAL LAWS

- Drivers shall operate vehicles in accordance with the law.
- Drivers shall not operate vehicles that are known to be defective or not in compliance with the law.
- Drivers are personally liable and responsible for the consequences of state and community violations.
- The use of devices designed to identify active police speed detection systems (i.e., radar detectors) is prohibited in all Parsons and subcontractor owned, leased, and rented vehicles, and in personal vehicles used for company compensated business travel.

10.7 SAFE DRIVING PRACTICES

- Personnel shall operate vehicles in a defensive manner, i.e., being always on the alert and trying to anticipate what might occur under the existing conditions and driving in such a manner as to avoid hazards.

- Personnel operating vehicles shall be considerate of, and courteous to, the traveling public and/or pedestrians and should yield the right-of-way to avoid accidents.
- Headlights will be switched to low beam when approaching oncoming traffic.
- Personnel will have headlights on during periods of darkness and during fog, smoke, rain, or unfavorable atmospheric conditions.
- Personnel shall drive at speeds consistent with posted speed limits and prevailing conditions, such as weather, traffic, and road conditions.
- Personnel shall drive at all times with sufficient space around the vehicle to provide time to see conflicts arising, to react quickly, and to stop. These five keys to defensive driving will help accomplish a good space cushion.
  - Aim high in steering;
  - Get the big picture;
  - Keep your eyes moving;
  - Leave yourself an out; and
  - Make sure they see you.

10.8 GENERAL SAFETY RULES

- **Blind Curves** - Slow down and sound horn when approaching a blind curve.
- **Driver's License** - Operation of a vehicle without a valid operator's license is prohibited. Personnel operating vehicles regulated by the United States Department of Transportation (DOT) shall have a current commercial driver's license (CDL).
- **School Buses** - Obey school bus laws. Slow down and prepare to stop when approaching school buses, children on foot, or on bicycles.
- **Emergency Vehicles** - Give ambulances, fire-fighting equipment, and other vehicles the right-of-way during emergencies and lend assistance if required.
- **Gasoline** - Gasoline and other flammable/combustible liquids shall not be carried in or on vehicles other than in permanent gas tanks or in UL approved safety cans. UL approved safety containers must be properly secured when being carried in the back of pick-up trucks.
- **Laws and Regulations** - Learn and obey all local, state, and federal laws.
- **Parking** - Equipment and vehicles shall be parked off roads and highways whenever possible. When it is not possible, the vehicle shall be marked by red lights or flares at night and red flags during the day. Wheels should be blocked or chocked. Vehicles will be attended until the motor has been shut off and the key removed from the ignition.
- **Passing** - Do not pass when visibility is restricted for any reason.
- **Pedestrians** - Be constantly alert for pedestrians. Remember they have the right-of-way.

- **Slow Down** - Slow down and use caution at blind intersections and crossings when visibility is limited or when passing work crews.
- **Speeding** - Speeding is strictly prohibited.
- **Visibility** - Make sure all windshields, side and rear windows, mirrors, and lights are clean before moving vehicles.
- **Warning Signs and Traffic Signals** - Be alert for and strictly obey all directional and warning signs and signals.
- **Seat Belts** - Operator and passengers must keep seat belts fastened at all times when vehicle is in motion.

10.9 DOT REGULATED VEHICLES/EQUIPMENT

- **Commercial Driver's License.** All Parsons and subcontractor personnel operating a DOT regulated vehicle must hold a valid Commercial Driver's License from their state of residence.
- **Backing Up** - Never start or back up equipment or vehicles until you are sure the way is clear. If necessary, have another person guide you safely. Back up alarms, when required, must be working and audible over the surrounding noise.
- **Ear Protection** - Earplugs or other approved ear protection shall be worn when necessary. Use of earplugs in cars or trucks on public highways may be against local laws.
- **Fueling and Repair** - No fueling or repair shall be made to equipment while it is in operations. The motor shall be turned off and the bucket, blade, gate, or boom shall be lowered to the ground or blocks.
- **Housekeeping** - Operators should keep deckplates, steps, rungs, and hand rails on equipment free of grease, oil, ice, and mud. The inside of the cabs shall also be kept clean and free of tools, equipment, and flammable items.
- **Inspections**- Equipment and vehicles shall not be used until known defects or discrepancies are corrected. Inspections shall be made daily and defects or discrepancies shall be reported to the supervisor immediately.
- **Jumping** - Jumping on or off equipment is prohibited. When climbing on or off equipment or vehicles, face the unit and use secure hand and foot holds to prevent slips and falls. Always look where you are stepping.
- **Know Your Equipment or Vehicle** - It is your responsibility to be thoroughly familiar with all features and manuals and if you are in doubt as to correct operating techniques or safety features, ask your supervisor at once.
- **Overloading** - Avoid overloading vehicle beds and equipment buckets and beds. Excessive material can damage the unit and falling material can cause serious injury.
- **Power Lines** - When operating trucks, cranes, shovels, or other units, always use caution around power lines and maintain a minimum safe clearance of 10 feet or more depending upon the voltage.

- **Riders** - Only authorized persons will be permitted to ride in equipment or vehicles. The number of passengers in a passenger-type vehicle will not exceed the number that can be seated.
- **Securing Loads** - The operator of the vehicle is responsible for ensuring that their load is secure and will not shift during transport.
- **Long Hauls** - On long hauls, binders should be checked periodically (at least during each rest or service stop) to make sure they are still secure and tight.
- **Overhanging and Oversize Loads** - When it is necessary to transport overhanging or oversize loads, the appropriate signs and red flags (not less than 144 in^2) and red lights will be used. When necessary, use flag cars.
- **Safety Chains** - Safety chains of sufficient size and strength shall be installed on all trailers being towed. Personnel are not permitted between towed loads and towing vehicles except when hooking or unhooking.
- **Safety Hooks** - Use safety hooks with latches on all winch truck cables.
- **Side Roads and Railroad Tracks** - Stop and look both ways before crossing railroad tracks or before driving onto a highway from a side road.
- **Stopping** - Do not stop vehicles in the middle of the road to talk to occupants in another vehicle. Always pull to the side or off the road to maintain a clear, safe road.
- **Turn Signals** - Always use turn signals, emergency and other signals as appropriate when turning, stopping, passing, or performing other vehicle operations.
- **Vehicle Maintenance** - It is the driver's responsibility to see that his vehicle is in good mechanical condition before and during operation. Special emphasis should be placed on ensuring the brakes, lights, horn, windshield wiper, tires, and steering assembly are in good order. Defects must be reported and corrected immediately.

10.10 HEAVY EQUIPMENT OPERATIONS

10.10.1 Team Composition

The minimum team make-up will be**:**

- One qualified operator, either a UXO Technician or Non-UXO trained individual;
- One ground guide (the Safety Observer can fill this role and that of safety Observer if conditions permit); and
- One Safety Observer.

Team Leader - The Team Leader, who is also the overall Safety Observer, will direct the site personnel and equipment during the operation. Depending on the complexity of the operation, he may also serve as the backup guide. The Team Leader will be trained, as a competent person when required.

Ground Personnel - Team members working on heavy equipment operations will be qualified through non-the-job training (OJT) and will perform such tasks as magnetometer checks, manual excavation and checks of the excavation for UXO items. When using a UXO Tech I for manual excavation where MEC may be present, a UXO Technician III must be present to supervise.

Equipment Operators - All site personnel, regardless of affiliation, who operate heavy equipment, will be qualified through documented formal training, equivalent previous employment experience or on the job training. Documentation of this training will be kept on file at the site. The operator, when engaged in heavy equipment operations, will perform daily inspection and maintenance functions (See Figure 1), or as directed by the operator's manual for that specific equipment.

10.10.2 Use of Non-UXO Personnel

Use of Non-UXO personnel as operators on UXO sites is authorized. There is no requirement for additional safety barriers or shielding during the operation, IAW USACE EP 385-1-95a. When the operation has come within one foot of the UXO item or anomaly being investigated, unless the operator has been designated essential personnel, the Non-UXO operator must move outside the pre-designated Minimum Safe Distance (MSD), until recalled by the UXO Technician III.

10.10.3 Equipment Procedures

The hazards associated with heavy equipment involve moving parts and exposure to possible pinch points. Safe operating procedures for each type of equipment or activity must be reviewed and followed. Safety protection, including equipment guards, which must not be removed, shall be provided to mitigate this problem. Site personnel operating or working within close proximity to heavy equipment will wear hard hats, eye protection, steel-toed boots, and hearing protection (as necessary).

Heavy equipment used on the site must meet the requirements of OSHA, DOT, and general industry standards. The operator will be responsible for completing daily written inspections of all heavy equipment and provide copies of the inspection as well as required certifications to the Site Manager (SM). All personnel who operate equipment must use any safety devices, such as seat belts, that the equipment is equipped with during operation. All operators will follow the following heavy equipment operating rules:

- Only personnel trained in the operation of heavy equipment are permitted to operate such equipment;
- Personnel may only operate equipment for which they have received training and certification. Trainees may operate heavy equipment, but only under competent supervision;
- Before operating any heavy equipment, the operator must conduct a pre-operational check of the piece of equipment. Brakes, hydraulic lines, light signals, fire extinguishers, fluid levels, steering, tires, horn, and other safety devices will be checked daily and

maintained in good working order throughout the duration of its use. If it is found to be unsafe, the operator must report the condition immediately to the appropriate supervisor, and the piece of equipment placed in an unserviceable status until it has been repaired or replaced.

- The operators of heavy equipment will complete a daily inspection form (See Figure 1).

- All heavy equipment will not be backed up unless the vehicle has a reverse signal alarm audible above the surrounding noise level, backup warning lights, or the vehicle is backed up using a ground guide.

- Heavy equipment will be provided with necessary safety equipment including seat belts, roll-over protection, emergency shut-off during roll-over, backup warning lights, and audible alarms as applicable.

- Blades and buckets will be lowered to the ground and parking brakes will be set before shutting off any heavy equipment.

- Special consideration must be given to the proper functioning of tires, horns, lights, batteries, controllers, lift systems (including forks, chains, cable and limit switches), brakes, and steering mechanisms;

- All heavy equipment must be operated at an authorized safe speed, consistent with conditions, and at a safe distance from other vehicles. Heavy equipment must be under positive control at all times;

- No riders other than the driver are permitted on heavy equipment at any point;

- When heavy equipment is left unattended, loads must be lowered, controls neutralized, power shut off, and brakes set. Wheels should be chocked if the equipment is parked on an incline.

- Backhoe support struts (downriggers) shall be equipped with cleated pads for use in soft sandy soil rather than rubber pads (for hard surfaces).

- When working near a backhoe or excavator, field personnel will maintain sight contact with the operator. Field personnel shall not work within the swing radius of the equipment while the equipment is operating. The swing radius will be defined with traffic cones, barrier tape, or other suitable means, such as inscribing the radius on the soil surface using the backhoe bucket.

- Personnel will not cross the demarcated line without first establishing eye contact with the operator. The operator will cease vehicle operations and remove his hands and feet from the controls and/or turn the equipment off, before allowing personnel access to the area within the swing radius. Operations will resume only after all personnel have left the area within the swing radius.

10.10.4 Personnel Protective Equipment (PPE)

Modified Level D PPE will be required for personnel engaged in heavy equipment operations. Clothing items will be:

- Coveralls or work clothing as prescribed by APP;
- Work gloves, leather or canvas, as prescribed by APP;
- Safety glasses - as wind conditions and airborne particulate matter dictates;
- Hardhats;
- Highly Visible Safety Vests;
- Work Boots, steel toe - Sturdy and of sufficient height to aid in ankle support;
- Hearing Protection - Will be determined through a Noise Survey for any heavy equipment brought on site. Until the survey is completed and the degree of attenuation determined, personnel on the team will wear appropriate hearing protection; and
- Dust Masks - as wind conditions and airborne particulate matter dictates.

NOTE: If the heavy equipment is being used for the clearance in support of other operations, PPE will be IAW that specific matrix (i.e. rat nests - Hantavirus SOP or RCWM projects).

10.11 GENERAL HEAVY EQUIPMENT SAFETY PRECAUTIONS

10.11.1 Underground Utilities

Utilities companies shall be contacted within established or customary local response times advised of the proposed work and asked to locate underground utilities (sewer, telephone, electric, water, gas or any other utility) prior to start of actual excavation. When these locations cannot be established, the excavation may proceed, provided the heavy equipment operation does so with caution, and only after site personnel, using detection equipment, have made an attempt to locate utilities. While the excavation is opened, and underground utilities exposed, they shall be protected, supported or removed as necessary to safeguard workers.

10.11.2 Exposure to Vehicle Traffic

Team members exposed to vehicular traffic shall be provided and wear warning vests or other suitable garment with a highly visible (reflector) material. Traffic direction paddles or saw horse type barricades may also be required to halt or redirect vehicular traffic around the excavation site.

10.11.3 Exposure to Falling Loads

No worker shall be permitted underneath loads handled by lifting or digging equipment. Workers are required to stand away from any vehicle being loaded or unloaded to avoid being struck by any spillage or falling material.

10.11.4 Equipment Warning Device

All heavy equipment will be equipped with an audile warning system that sounds when the equipment is backing up. Heavy equipment needing to be moved adjacent to an excavation or approach the edge, and the operator does not have a clear and direct view of the edge, will institute a warning system, such as barricades, stop logs or arm and hand signals from the safety observer.

10.11.5 Loose Rock or Soil

Workers will be protected from excavated or other materials or equipment that could pose a hazard by falling or rolling into excavations. All equipment or materials will be placed at least 2 feet (.61m) from the edge of excavations, or by use of retaining devices that are sufficient to prevent the equipment or material from falling or rolling into the excavation. Also scaling the excavation face to remove loose rock or soil and the installation of protective barriers at intervals on the face to stop or contain falling material will be used when appropriate.

10.11.6 Cave-In

Excavations will be protected from cave-ins by adequate protective systems (sloping and benching or shielding and support).

10.11.7 Operation of Heavy Equipment

Heavy Equipment will not be operated without a spotter. This includes moving, repositioning, and using the front and rear attachments. Prior to starting an excavation, a safety arc will be etched in the ground with the front or rear boom, fully extended. If operating on a hard surface, the safety arc will be marked on the ground, with bright spray paint. Prior to anyone entering the safety arc, the operator will:

- Swing the boom fully to one side;
- Lower the bucket to the ground;
- Place engine in idle speed; and
- Hold his hands clear of the controls or in the “Hands Up” position.

10.11.8 UXO Precautions

All heavy equipment operations will adhere to the MSD as described in the site Work Plan. The lateral distances will be maintained when conducting heavy equipment operations on a UXO site. These distances may be reduced or extended by the USACE Site Safety Representative, based on an assessment of site history, size of site, expected UXO, terrain features or other such factors that may apply. The following distances shall apply as applicable:

- 200 feet minimum or the K50 factor distance (whichever is greater) from non-UXO trained site personnel, unrelated to the operation.
- 200 feet minimum or the K50 factor distance (whichever is greater) from another heavy equipment operation or other manual intrusive operations.
- All excavations will be conducted offset laterally for the suspected UXO item or anomaly being investigated.
- The heavy equipment will uncover no more than six (6) inches of earth per dig.
- The heavy equipment will not be used to excavate closer than 12 inches from UXO.
- Suspend all operations immediately upon approach of an electrical storm.
- Observe the hazards of electromagnetic radiation (EMR) precautions when working in the vicinity of electrically initiated or susceptible UXO.
- Do not handle any MEC unnecessarily.
- Incorporate appropriate property protective measures for shock and fragmentation when conducting MEC operations.

10.12 HEAVY EQUIPMENT TRAINING

10.12.1 Competent Person

The Team Leader will serve, as the "Competent Person" for all heavy equipment operations. The Project Health and Safety Officer (PHSO) or the OE Group Certified Industrial Hygienist (CIH) will conduct this training, during the site specific training. This training will be documented and kept on file at the site. Minimum elements of training will include:

- Review of OSHA Regulation for Safety and Health Requirement for Construction/Excavations – *OSHA Regulation 29CFR1926, Subpart P, Appendix A and 29CFR1926.652, Subpart P, Appendix F*, (Annex A of this SOP)
- Proper Shoring and Sloping Techniques
- Soil classification and evaluation at the excavation site.
- Responsibilities of a Competent Person.

Figure 1: Heavy Equipment Inspection Report

Date:	**Vehicle Make:**	**Rental/Lease/Private** *(circle one)*
Lic Plate #:	**Veh VIN#:**	
Starting Mileage/Hours for Week:	**Ending Mileage/Hours for Week:**	
General Vehicle Inspection		

Check { } with R for repair needed; X for OK; / for adjustment made

1. Windshield { }	**3. Vehicle Interior** { }
2. Vehicle Exterior { }	**4. Leaks** { }
5. Lights: a. Headlights { } b. Tail lights { } c. Turn Signals { } d. Brake Lights { } e. Back-up Alarm { }	
6. Brakes { }	**10. Belts** { }
7. Horn { }	**11. Defroster** { }
8. Tires/Tracks (Tread wear/pressure) { }	**12.Radiator/Hoses** (DON'T check when hot) { }
9. Windshield Wipers/Washer { }	**13. Battery** { }
14. Fluid Levels: (Circle approximate level) a. Oil Full 1qt low Added_____ b. Coolant: Full Need coolant Added_____ c. Transmission: Full 1pt low Added_____ d. Fuel: Full ½ ¼ Empty	e. Hydraulic Fluid Full 1qt low Added_____ f. Grease Fittings Full Added_____ g. ROPS Certificate Yes No
Comments/Repairs/Service(s) Needed: Next Service @_____hrs	

Annex A

Soil Classification for Heavy Equipment Operations

1.0 SOIL TYPES

The following soil types may be encountered in the course of excavating soil. Knowledge of soil characteristics of the soil types is beneficial to understanding the hazards associated with each.

- **Cemented Soil** – A soil in which a chemical agent, such as calcium carbonate, holds the particles together whereas a hand-size sample cannot be crushed into powder or individual soil particles by finger pressure.

- **Cohesive Soil** – A fine grained soil (clay) or soil with a high clay content, which has cohesive strength. Cohesive soil does not crumble, can be excavated with vertical side-slopes and is "plastic" when moist. Cohesive soil is hard to break up when dry, and exhibits significant cohesion when submerged. Cohesive soils include clayey silt, sandy clay, silty clay, clay and organic clay.

- **Dry Soil** – A soil that does not exhibit visible signs of moisture content.

- **Fissured Soil** – A soil material that has a tendency to break along definite planes of fracture with little resistance or a material that exhibits open cracks, such as "tension cracks," in an exposed surface.

- **Granular Soil** – Means gravel, sand, or silt (coarse grained soil) with little or no clay content. Granular soil has no cohesive strength. Some moist granular soils exhibit apparent cohesion. Granular soil cannot be molded when moist and crumbles easily when dry.

- **Layered System** – Means two or more distinctly different soil or rock types arranged in layers. Micaceous seams or weakened planes in rock or shale are considered layered.

- **Moist Soil** – Means a condition in which a soil looks and feels damp. Moist cohesive soils can easily be shaped into a ball and rolled into small diameter threads before crumbling. Moist granular soil that contains some cohesive material will exhibit signs of cohesion between particles.

- **Plastic Soil** – means a property of a soil, which allows the soil to be deformed or molded without cracking, or appreciable volume change.

- **Saturated Soil** – Means a soil in which the voids are filled with water. Saturation does not require flow. Saturation, or near saturation, is necessary for the proper use of instruments such as a penetrometer or sheer vane.

2.0 SOIL CLASSIFICATION

If personnel are to enter the excavation, the soils of the excavation must be classified to determine the design of the appropriate protective system. Each soil and rock deposit at an

excavation site must be classified by a competent person, as either stable rock, Type A, Type B, or Type C soil.

The soil classification results must be made based on the results of at least one visual test (tension cracks or signs that the soil has been previously disturbed) and one manual test (use of pocket penetrometer or shear-vane to measure unconfined compression strength). The definitions of the various soil classifications are presented below.

- **Stable Rock** is natural solid mineral matter that can be excavated with vertical sides and will remain intact while exposed.
- **Type A Soils** are cohesive soils with an unconfined compressive strength of 1.5 tons per square foot (tsf) (144 kPa) or greater. Examples of Type A cohesive soils are: clay, silty clay, sandy clay, clay loam and, in some cases, silty clay loam and sandy clay loam. A soil cannot be classified as Type A if it is fissured; subject to vibration from traffic, pile driving, or similar effects; has previously been disturbed, is part of a sloped, layered system where the layers dip into the excavation on a slope of 4 horizontal to 1 vertical (4H:1V) or greater; or has seeping water.
- **Type B Soils** are cohesive soils with an unconfined compressive strength greater than 0.5 tsf (48 kPa) but less than 1.5 tsf (144 kPa). Examples of other Type B soils are: angular gravel; silt; silt loam; previously disturbed soils unless otherwise classified as Type C; soils that meet the unconfined compressive strength or cementation requirements of Type A soils but are fissured or subject to vibration; dry unstable rock; and layered systems sloping into the trench at a slope less than 4H:1V (only if the material would be classified as a Type B soil).
- **Type C Soils** are cohesive soils with an unconfined compressive strength of 0.5 tsf (48 kPa) or less. Other Type C soils include: granular soils such as gravel, sand and loamy sand, submerged soil, soil from which water is freely seeping, and submerged rock that is not stable. Also included in this classification is material in a sloped, layered system where the layers dip into the excavation or have a slope of four horizontal to one vertical (4H:1V) or greater.

Table 1-1

Maximum Allowable Slopes

Soil or Rock Type	Maximum Allowable Slopes (H:V) for Excavations less than 20 feet in depth	
Stable Rock	**Vertical**	**(90 deg.)**
Type A	**¾:1**	**(53 deg)**
Type B	**1:1**	**(45 deg)**
Type C	**1 ½:1**	**(34 deg)**

Exception: Simple slope excavations, which are open 24 hours, or less (short term) and 12 feet or less in depth shall have a maximum allowable slope of ½:1.

FINAL

SAFETY CONSIDERATIONS DURING TRENCHING AND EXCAVATION

SAFETY CONSIDERATIONS DURING TRENCHING AND EXCAVATION

11.1 INTRODUCTION

Parsons will control the hazards posed by open excavation through strict compliance with the procedures outlined in this document. This plan addresses U.S. Army Corps of Engineers excavation requirements contained in Section 25 of the US COE *Safety and Health Requirements Manual* (EM-385-1-1, 3 Nov 2003) and OSHA requirements as specified in 29 CFR 1926.651 (*Excavation and Trenching).* In the event of a conflict between these referenced standards, the more stringent will prevail. Excavations for the Site 8 Removal Action are being conducted for removing potential RCWM in the subsurface. Thus, limiting/preventing potential exposures of project personnel must be the FIRST consideration during all intrusive excavations. This will be accomplished by providing protective clothing/respiratory protection, conducting air monitoring during intrusive activities, and decontaminating personnel/equipment.

11.2 GENERAL REQUIREMENTS

11.2.1 Site Reconnaissance

A visual surface reconnaissance and geophysical survey (e.g., magnetometer) will be performed over the excavation area prior to any intrusive work. The objective of this survey is to identify physical hazards, suspected hazards, unexploded ordnance, chemical warfare material, energetic materials, flammables, pyrotechnics, underground utilities, and unknown buried objects. Subsurface contacts are located and marked with a non-metallic identifier and recorded by position.

11.2.2 Underground Installations/Utility Locations

11.2.2.1 The estimated location of utility installations, such as sewer, telephone, fuel, electric, water lines, or any other underground installations that reasonably may be expected to be encountered during excavation work, shall be determined prior to beginning an excavation. Utility companies or a utility locator organization shall be contacted at least seven working days prior to excavation activities and asked to establish the location of underground utilities. Utilities must be located before excavation activities commence.

11.2.2.2 Equipment operators shall maintain a reasonable clearance between any underground utility and the cutting edge or point of powered equipment. When

excavating with powered equipment within 18 inches of the markings of underground facilities, personnel should conduct the excavation in a careful and prudent manner by excavating by hand to determine the precise location of the facility/utility to prevent damage. While the excavation is open, underground installations shall be protected, supported or removed as necessary to safeguard employees.

11.3 PROCEDURES FOR EXCAVATING SUSPECTED RCWM

11.3.1 Excavation Procedure

11.3.1.1 Personnel involved in excavation operations using heavy equipment will follow the following procedures:

- Stage equipment in the Contamination Reduction Zone (CRZ);
- Ensure correct PPE is being used;
- Inspect PPE prior to use;
- Determine wind direction by position of streamers;
- Conduct a geophysical survey over the surface excavation area with a magnetic locator or other handheld instrument to verify the position of subsurface contacts;
- Mark the position of contacts and alert equipment operator to the suspected depth, approximate size, and orientation of subsurface relative to the surface;
- Equipment operator will ensure observer is clear from the operating radius of the excavation equipment prior to operating the equipment;
- Perform radio/communications check with the SSHO;
- Extend boom to the maximum length and position bucket to scrape surface with teeth extended down;
- Scrape 4 to 6 inches of top soil from the surface;
- Operator lowers the equipment and the boom to the ground and removes hands from controls prior to signaling for entry of observer to investigate the open trench;
- The team revalidates positions of contacts and sweeps the clear soil area for additional contacts that may result from movement of sub-grade material;
- Observer watches the excavation process for any suspect material that may be encountered. The operator immediately halts excavation when a closer look or sampling is necessary;
- Conduct air monitoring of exposed surface, excavated soil and the breathing zone of excavating teams (ECBC monitors chemical agents and Parsons monitors industrial chemicals – in accordance with the Work Plan.);

- Account for the position of all field personnel and resume the excavation procedures;
- Excavated fill is to be staged no higher than one half the depth of the trench and staged no closer than two feet from the trench;
- Repeat excavation procedures until sampling and excavation is complete;
- Close excavation with excavated materials and tamp;
- Decontaminate excavation equipment with steam cleaner and 5.0% bleach solution (Site 8, Work Plan, Appendix D); and
- Do not drive equipment over a trench that has been backfilled.

11.3.1.2 The Down Range Team may initially excavate using a backhoe or by shovel. If suspected RCWM or MEC is located, excavation by backhoe will cease and subcontract personnel will excavate with shovels until all identifiable RCWM or MEC have been removed. Backhoe operation may then resume. The Down Range Team will maintain a buffer zone between the edge of the excavation and the excavation equipment.

11.4 ACCESS AND EGRESS

If employees are required to enter an excavation that requires shoring, structural ramps or ladders will be used as a means for access or egress. A competent person qualified in structural design must design the ramps. Ramps and runways constructed of two or more structural members shall have the structural members connected together to prevent displacement. If ladders are used, the ladder shall be located every 25 feet of lateral travel distance. Ramps or ladders must be provided when entering an excavation 4' or greater in depth.

11.5 EXPOSURE TO FALLING LOADS

No employee shall be permitted underneath loads handled by lifting or digging equipment. Employees shall be required to stand beyond the swing radius of the backhoe to avoid being struck by any spillage. Employees may ONLY collect samples from the backhoe bucket when the bucket has been lowered to the ground and the operator has removed his hands from the controls. ***Never approach a backhoe unless the operator sees you***.

11.6 WARNING SYSTEM FOR MOBILE EQUIPMENT

When mobile equipment is operated adjacent to an excavation or when such equipment is required to approach the edge of an excavation, and the operator does not have a clear and direct view of the edge of the excavation, a warning system shall be utilized such as barricades, hand or mechanical signals, or stop logs. If possible, the grade should be away from the excavation.

11.7 HAZARDOUS ATMOSPHERES

Refer to the air monitoring sections of the Programmatic Work Plan and Site-Specific Work Plan.

11.8 PROTECTION FROM HAZARDS ASSOCIATED WITH WATER ACCUMULATION

11.8.1 Employees shall not work in excavations in which there is accumulated water, or in excavations in which water is accumulating, unless adequate precautions have been taken to protect employees. These precautions may include special support or shield systems to protect from cave-ins, water removal to control the level of accumulating water, or use of safety harnesses and lifelines. All water removal operations must be monitored by a competent person.

11.8.2 If excavation work interrupts the natural drainage of surface water (such as streams), diversion ditches, dikes, or other suitable means shall be used to prevent surface water from entering the excavation. Excavations subject to run-off from heavy rains will require an inspection by a competent person before personnel are allowed to enter the excavation.

11.9 PROTECTION OF EMPLOYEES FROM LOOSE ROCK OR SOIL

11.9.1 Adequate protection shall be provided to protect employees who enter excavations or trenches from loose rock or soil that could pose a hazard by falling or rolling from an excavation face. Such protection shall consist of scaling to remove loose material, installation of protective barricades at intervals as necessary on the excavation face to stop and contain falling material, or other means that provide equivalent protection.

11.9.2 Employees shall be protected from excavated or other materials or equipment that could pose a hazard by falling or rolling into excavations. Protection shall be provided by placing and keeping such materials or equipment at least 2 feet from the edge of excavations, or by the use of retaining devices that are sufficient to prevent materials or equipment from falling or rolling into excavations.

11.10 SELECTION OF PROTECTIVE SYSTEMS

If Parsons personnel or subcontractors are required to enter excavations greater than 5 ft in depth, the sides of the excavation must be protected to prevent cave-in. Sloping and benching precautions to protect against cave-ins for this project will be in accordance with 25.C of EM 385-1-1.

11.11 INSPECTIONS

11.11.1 Daily inspections of excavations, the adjacent areas, and protective systems shall be made by a "competent person" for evidence of a situation that could result in possible cave-ins, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions. The competent person for this project will be the SSHO. An inspection shall be conducted by the competent person prior to the start of work and as needed throughout the shift. Additionally, an inspection shall be made after every rainstorm or other hazard increasing occurrence. Inspections are required when employee exposure (i.e., personnel may be required to go into an excavation or trench that is greater than 5 feet deep) can be reasonably anticipated. Inspections must be documented by the "competent person."

11.11.2 When the "competent person" finds evidence of a situation that could result in a possible cave-in, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions, exposed employees shall be removed from the hazardous area until the necessary precautions have been taken to ensure their safety.

FINAL

SAFE PROCEDURES FOR HANDLING, STORAGE AND USE OF PRESSURIZED CYLINDERS

SAFE PROCEDURES FOR HANDLING, STORAGE AND USE OF PRESSURIZED CYLINDERS

12.1 PURPOSE

The purpose of this procedure is to outline the minimum requirements for safe handling and use of compressed gas and gas cylinders by Parsons employees. This procedure is an overview of the requirements of 29 CFR 1910.101, .169, and .253. It is anticipated that pressurized cylinders will be used to store and supply Grade D breathing air for Level A and B activities. This procedure is intended to provide procedures for safely handling these cylinders and any other pressurized gases used on this project.

12.2 USE OF COMPRESSED AIR OR GASES

- Compressed air or other compressed gases are not to be used to blow dirt, chips, or dust from clothing.
- The use of compressed air is to be controlled, and proper personal protective equipment or safeguards used, as to protect against the possibility of eye injury to the operator or other persons.
- Compressed gases are not to be used to elevate or otherwise transfer any hazardous substance from one container to another unless the containers are designed to withstand the pressure with a safety factor of at least four.

12.3 COMPRESSED GAS CYLINDERS

- Cylinders must never be dropped, struck, or permitted to strike each other violently. Use carts or racks to move compressed gas cylinders; correct material handling techniques must be exercised when moving cylinders.
- Valve protection caps must always be kept on cylinders when they are being moved, stored, or until ready for use.
- Cylinder valves are to be kept closed except when gas is being used or when connected to a permanent manifold. Valves of empty cylinders must be closed.
- Cylinders must never be used as rollers or supports, or for any purpose other than carrying gas.
- Cylinders of compressed gas shall be stored in areas where they are protected from external heat sources such as flame impingement, intense radiant heat, electric arc, or high temperature steam lines.

- Cylinders are to be stored in an assigned area with full and empty cylinders separated. Stored fuel gases and oxygen cylinders are to be separated by 20 feet, or by a fire wall at least five (5) feet high having a fire-resistance rating of at least one-half (1/2) hour.
- Oxygen, nitrogen, helium, or freon cylinders must be stored upright or transported in a horizontal position with the exception of acetylene cylinders, which must always be kept in an upright position in accordance with EM 385-1-1. All horizontally placed cylinders are to be secured by chocks or ties to prevent rolling.
- Cylinders are to be secured to a fixed object by chain or equivalent fastening device whenever they are placed in an upright position. The protective cap is not to be removed or the cylinder valve opened until the cylinder is secured.
- The repair of leaks must never be attempted on a pressurized system. If leaks develop, system pressure should be reduced to atmospheric pressure as rapidly as possible, and the SSHO notified immediately.
- Identification of the gas to be used must always be assured before connecting cylinders for use. All cylinders are to be labeled as to contents in addition to proper color-coding. Color-coding of cylinders should be posted.
- Compressed gas cylinders in portable service are to be conveyed by suitable trucks to which they are securely fastened. All gas cylinders in service must be securely held in substantial racks or secured to other rigid structures so that they will not fall or will not be knocked over.
- Gas cylinders moved by hoist must be handled in suitable cradles or boxes.
- Cylinders must not be placed where they might form part of an electrical circuit.
- Transfer of acetylene from one cylinder to another is prohibited.
- Oxygen cylinders are never to be stored near:
  - ◊ Highly combustible materials, especially oil and grease.
  - ◊ Reserve stocks of acetylene or other fuel gas cylinders.
  - ◊ Any other substance likely to cause or accelerate fire.
- All cylinders used and stored on site must have been hydrostatically tested within the last 5 years and have the date stamped on the cylinder. Any cylinder not having a current hydrostatic test should be rejected.
- Compressed gas cylinders must be legibly marked for identifying the gas content with either the chemical or the trade name of the gas. Such marking is to be by means of stenciling, stamping or labeling, and must not be readily

removable. Whenever practical, the marking is to be located on the shoulder of the cylinder.

- Compressed air and oxygen are not interchangeable as gases. Oxygen shall never be used for the following:
  - ◊ As breathing air.
  - ◊ To purge pipelines, tanks, or any confined area.
  - ◊ To supply a head-pressure tank.
  - ◊ To power pneumatic tools.
  - ◊ In oil preheating burners.
  - ◊ To start internal combustion engines.
  - ◊ Ventilation.
  - ◊ Cleaning clothing.
  - ◊ In any other way as a substitute for compressed air.
- Use of a cylinder's contents for purposes other than those intended by the supplier is prohibited.

FINAL

RESPIRATORY PROTECTION PROGRAM

RESPIRATORY PROTECTION PROGRAM

13.1 REQUIREMENTS, ORGANIZATIONAL RESPONSIBILITIES, AND EVALUATION

13.1.1 Introduction

13.1.1.1 The Occupational Safety and Health Administration (OSHA) has established safe exposure levels for various airborne contaminants that may be encountered at sites during field operations. If worker exposure to these substances exceeds the OSHA permissible exposure limits (PELs), OSHA requires that feasible engineering controls and administrative measures be instituted to reduce worker exposure to within acceptable levels. If these controls are not feasible, employers are required to provide the appropriate, approved respirators for employee protection. Because of the nature of hazardous waste site work, traditional engineering controls are not always feasible. Hence, respirators must be relied upon as a means for protecting workers at hazardous waste sites and CWM sites.

13.1.1.2 No workers will be permitted to wear a respirator without clearance from a physician. This clearance is normally obtained from the examining physician at the time of the worker's normal and periodic physical examinations. The Parsons medical monitoring program is described in the Medical Surveillance, Control/Access to Employee Medical Records, and Emergency Care SOP (Section 2). The diagnostic protocol for a fit-to-work classification for workers covered by HAZWOPER (OSHA in 29 CFR 1910.120) includes an assessment of the worker's ability to use air purifying respirators and self-contained breathing apparatus (SCBAs). The examining physician obtains clinical data, including spirometry, X-ray, and cardiac-function data as well as physical observations on which to base a conclusion. A specific conclusion addressing this requirement must accompany the worker's fit-to-work statement from the examining physician. Some individuals, especially those with marginal respiratory and cardiac functions, may experience a sense of choking (angina) when using respirators. If this is distinct and persistent, the worker shall not be allowed to wear respiratory protective equipment until re-evaluated by a physician.

13.1.2 Objective of the Respiratory Protection Program

The objective of the Respiratory Protection Program is to provide workers with sufficient information and guidance to adequately protect themselves from potential inhalation hazards during hazardous waste operations. The use of respirators to protect personnel from inhalation hazards is permitted by OSHA when other methods of protection (e.g., engineering controls or changes in work practices) are not feasible.

13.1.3 Minimum Requirements of an Acceptable Respirator Program

The Occupational Safety and Health Administration has established the requirements for a minimally acceptable program under 29 CFR Part 1910.134. Elements in an OSHA-acceptable program must include the following:

- Use of approved respiratory devices;
- Selection of respirators based on the hazards present;
- An employee training program in which the employee becomes familiar with the respiratory protective devices and is trained in the proper selection and use of respirators and their limitations;
- Provisions for the proper cleaning, disinfection, maintenance, storage, inspection and repair of respirators;
- Testing for the proper fit of the respiratory protective equipment;
- Medical screening of employees to determine if they are physically able to perform their assigned work including the use of respiratory protective equipment;
- Written standard operating procedures for the selection and use of respiratory protective equipment; and
- Regular inspection and evaluation for the respiratory protection program to determine its effectiveness.

13.1.4 Positions and Personnel Responsible for the Program

Personnel with specific responsibilities for the implementation of the program are described in the following:

13.1.4.1 Health and Safety Representative. The Parsons Office or Subcontractor's Health and Safety (H&S) Representative is responsible for the following:

- Administering the respiratory protection program;
- Establishing the training program;
- Selecting and working with a medical contractor;
- Ensuring the office has the necessary respiratory protection equipment;
- Scheduling fit testing;
- Developing written standard operating procedures for the selection of respiratory protection equipment; and
- Scheduling audits of and evaluating the respiratory protection program.

13.1.4.2 Project Safety and Health Officer. The Project Safety and Health Officer is responsible for the following:

- Verifying that team members conducting the field investigation have received training in the selection and use of respirators and have the equipment necessary to conduct the investigation safely;
- Determining the degree of respiratory protection required for each field task or operation;
- Ensuring site-specific training is performed prior to on-site activities; and
- Ensuring records of respirator use are maintained.

13.1.4.3 Site Safety and Health Officer. The Site Safety and Health Officer is responsible for ensuring the following:

- Maintaining a record of respirator use;
- That respirators are inspected, maintained, and cleaned properly;
- That respirators are stored properly;
- Maintaining copies of fit test and medical records;
- Performing fit-testing as needed;
- Maintaining repair records for respirators;
- That Grade D or better breathing air is provided for atmosphere-supplying respirators; and
- Distribution of respirators to field team member.

13.1.4.4 Project Staff. All project team members are responsible for the following:

- Reading and conforming to the APP;
- Presenting a copy of their fit test results to the SSHO prior to receipt of a respirator;
- Inspecting and cleaning of their assigned respirator before and after each use;
- Storing respirators in a convenient, clean and sanitary location when not in use;
- Reporting any perceived problems or difficulties with respiratory equipment to the SSHO; and
- While using a respirator, workers shall be aware of any perception of odor, resistance in breathing, and/or fatigue and report their existence to the SSHO immediately.

13.1.4.5 Evaluation of the Respiratory Protection Program. Auditing of respiratory protection program practices will determine whether the appropriate respirators are being selected and worn properly. Examination of respirators in use and in storage will indicate how well the equipment is being maintained. The results of periodic audits of respirator storage and use consultations with wearers, measurements of hazard levels in work areas, and medical surveillance of wearers will be reviewed and

analyzed to determine the effectiveness of the respiratory protection program. Evidence of excessive exposure to a hazard will be followed up to determine why inadequate protection was provided, and action will be taken to prevent a repeat of the problem.

13.2 CRITERIA USED TO SELECT RESPIRATORY EQUIPMENT

13.2.1 Introduction

13.2.1.1 The level of respiratory protection will be selected prior to initiating an activity based on characterization of groundwater and soil, knowledge of the area and associated waste, and previous measurements of worker exposure levels for the same or very similar tasks under similar conditions.

13.2.1.2 The investigation of hazardous waste sites presents workers with a number of environmental conditions, some are better defined than others. Each environmental situation is unique and the selection of the appropriate respiratory protection device may involve many steps. The Project S&H Officer chooses the respiratory equipment to be used based on considerations which include the following:

- Consideration of all available information pertaining to the hazard including: past activities, suspected materials, historical information, land use, analytical data, and nature of current activities
- Evaluation of the relevancy and timeliness of the data to determine the appropriate protective level needed for the task
- Identification of substances present in the work area
- Evaluation of any known or suspected chemicals on site, using the following characteristics:
  - ◊ short term exposure limits (STEL), permissible exposure limits (PEL), and threshold limit values (TLV);
  - ◊ eye irritation potential for substance;
  - ◊ immediately dangerous to life and health (IDLH) concentration;
  - ◊ possibility of poor sorbent efficiency at and below IDLH concentrations (breakthrough times for anticipated concentrations);
  - ◊ the possibility of severe skin irritation resulting from skin contact;
  - ◊ the vapor pressure of the substance;
  - ◊ anticipated exposure concentrations;
  - ◊ the possibility of high heat of reaction with sorbent material in the cartridge or canister; and
  - ◊ the possibility of shock sensitivity of the chemical being sorbed onto the cartridge or canister.

- Determination of the physical state of the substance as it is likely to be encountered at the site. It will be either: a gas or vapor, a particulate (dust, fume, or mist), or a combination of both.
- Identification of oxygen-deficient atmospheres (ANSI Z88.2-1992). Air-purifying respirators shall not be worn in environments deficient in oxygen (less than 19.5 percent by volume or partial pressure less than 100mm of mercury).
- Skin Absorption and Irritation**.** A Level A ensemble provides skin protection from extremely toxic substances that may be absorbed through the skin or cause severe skin irritation. Most information concerning skin irritation is not quantitative but rather is presented in commonly used descriptive terms, such as "a strong skin irritant, highly irritating to the skin" and "corrosive to the skin." Decisions made concerning skin irritation are judgmental and are often based on this non-quantitative information

13.2.2 Sorbents

There are certain limitations to the use of sorbent cartridge or canister respirators. A sorbent cartridge is not recommended when:

- Evidence exists of short breakthrough times for the chemicals and the concentrations expected to be encountered during operations;
- There is reason to suspect that the sorbent does not provide adequate efficiency against the removal of a specific contaminant that may be encountered at the site;
- There is reason to suspect that a sorbent has a high heat of reaction with a substance;
- There is reason to suspect that a substance sorbed onto the surface of a cartridge or canister is shock sensitive; and
- Concentrations of organic vapors exceed the maximum use concentration for the respirator.

A sorbent, full-facepiece respirator will not be selected if the contaminant(s) are not known or cannot be measured.

13.2.3 Eye Irritation

The decision of whether to use a full-facepiece respirator, a half, or a quarter face piece respirator is often made by considering the chemical's potential for producing eye irritation or damage. The following guidelines deal with eye protection.

- For routine work activities, any eye irritation is considered unacceptable. Therefore, only full-facepiece respirators are permissible in contaminant concentrations that produce eye irritation.
- For escape, some eye irritation is permissible if it is determined that such irritation would not inhibit escape and such irritation is reversible.

- In instances where quantitative eye irritation data cannot be found in literature references, and theoretical considerations indicate that the substance should not be an eye irritant, half-face-piece respirators are allowed.
- In cases where a review of the literature indicates a substance causes eye irritation but no eye irritation threshold is specified, the full-facepiece respirators are to be used.

  NOTE: Both mustard agent and lewisite are extreme eye irritants and a few minutes of exposure to high concentrations can cause permanent blindness.

13.2.4 Immediately Dangerous to Life or Health

13.2.4.1 The definition of IDLH provided in 30 CFR 11.3(t) is as follows:

> "Immediately dangerous to life or health means conditions that pose an immediate threat to life or health or conditions that pose an immediate threat of severe exposure to contaminants, such as radioactive materials, which are likely to have adverse cumulative or delayed effects on health."

13.2.4.2 The purpose of establishing an IDLH exposure concentration is to insure that the worker can escape without injury or irreversible health effects in the event of failure of the respiratory protective equipment. The IDLH is considered the maximum concentration above which only a highly reliable positive-pressure, atmosphere-supplying respirator is permitted. Since IDLH values are conservatively set, any approved respirator may be used up to its maximum-use concentration below the IDLH.

13.2.4.3 In establishing the IDLH concentration, the following factors are considered:

- Escape without loss of life or irreversible health effects. Thirty minutes is considered the maximum permissible exposure time for escape.
- Severe eye or respiratory irritation or other reactions that would prevent escape without injury.

13.2.4.4 The IDLH will be determined from the following sources:

- Specific IDLH concentrations provided in the literature (such as the American Industrial Hygienists Association Hygienic Guides and the National Institute of Occupational Safety and Health Pocket Guide to Chemical Hazards);
- Human exposure data;
- Acute animal exposure data; and
- Acute toxicological data from analogous substances.

13.2.4.5 The following guidelines will be used to interpret toxicological data reported in the literature for animal species:

- Where acute inhalation exposure data (30 minutes to 4 hours) are available for various animal species, the lowest exposure concentration causing death or

irreversible health effects in any species is determined to be the IDLH concentration.

- Chronic exposure data may have little relevance to the acute effects and will not be used in determining the IDLH.

  NOTE: Both mustard agents and lewisite have low IDLH concentrations.

13.2.5 Respirator Protection Factors

13.2.5.1 The protection factors of respiratory protection devices are a useful numerical tool to aid in the selection of appropriate respiratory protection. Protection factors measure the overall effectiveness of a respirator.

13.2.5.2 The protection factor of a given respirator for a specific user multiplied by the PEL for a given substance is the maximum allowable concentration of that substance for which the respirator may be used. For example, if the protection factor (PF) for a full-facepiece respirator is 50 and a particular substance has a PEL (or TLV) of 10 ppm, the full-facepiece respirator will provide protection up to 500 ppm (see Table 1).

Table 1
Example of Assigned Respirator Protection Factors

Type of Respirator	OSHA Cadmium Standard
Air Purifying	
Filtering-face-piece	10
Half-mask	10
Full-face	50
Powered Air Purifying	
Half-mask	50
Full-facepiece	250
Loose-fitting face-piece	25
Hood or helmet	25
Air Line	
Half-mask (demand)	10
Half-mask (continuous)	50
Half-mask (pressure demand)	1000
Full-facepiece (demand)	50
Full-facepiece (continuous flow)	250
Full-facepiece (pressure demand)	1000
Self contained breathing apparatus	
Demand	50
Pressure Demand	>1000

13.2.6 Types of Respirators

There are two main types of respirators, air-purifying and atmosphere-supplying.

13.2.6.1 Air-Purifying Respirators. An air-purifying respirator can be used only if the atmosphere contains greater than 19.5 percent oxygen and the contaminant is present at a concentration below the IDLH level. Two types of air-purifying respirators are described below.

- **Half-Face-piece Respirators**. A half-face-piece respirator fits from under the chin to above the nose. One or two cartridges are used to filter the air and are

discarded once the use limits are reached. The half-face-piece has approved cartridges for pesticides, organic vapors, dusts, mists, fumes, acid gases, ammonia, and several combinations of contaminants.

- **Full-facepiece Respirators**. The whole face, including the eyes, is protected by the full-facepiece respirator. It gives 5 times the protection of a half-face-piece (full-facepiece PF-50, half face-piece PF-10).

13.2.6.2 Atmosphere-Supplying Respirators. Atmosphere-supplying respirators provide from 5 minutes to several hours of breathing air. The amount of protection provided is based upon the type of face-piece and its mode of operation, continuous, demand, and pressure-demand. The pressure-demand mode provides the best protection.

Two types of atmosphere-supplying respirators may be used. These are an air line respirator and a self-contained breathing apparatus (SCBA). A description of each is presented below:

- **Air line Respirator**. This respirator uses an air line to transport clean, compressed air to the wearer. The mode of operation may be either continuous, demand, or pressure-demand. This respirator may be worn in an IDLH environment if it is pressure-demand type, and incorporates an escape SCBA into the system. However, no more than 300 feet of air line can be used.
- **Self-Contained Breathing Apparatus**. The wearer of a SCBA carries a cylinder of compressed air and is not restricted by an air line. These devices are open-circuit and are approved for either demand or pressure-demand operation. Greater protection is afforded, however, when these devices are operated in the pressure-demand mode and these devices are used in this mode when worn in IDLH or potentially IDLH conditions.

13.2.7 Use of Air Monitoring Measurements

The protection level will be modified as necessary based on real-time measurements, supplemented with background information, and professional judgment. Modification of the levels or respiratory protection will be made based on the following guidelines.

Level B to Level D

Guideline 1: This modification may be made in the sustained absence of chemical warfare agent, volatiles or particulates, as measured on air monitoring equipment and at the direction of the Project Health and Safety Officer.

Level C to Level D

Guideline 1: Same as Level B to Level D

Level B to Level C

Guideline 2: May be made at the direction of the SSHO (after conferring with the PHSO) when the contaminants and their concentrations are known.

The concentrations of the contaminants must be below the action levels requiring the utilization of level B protection. This modification should not be used without substantial knowledge of all the chemicals involved and their expected behavior in relation to change in concentration and effect on absorbent cartridges.

Level D to Level C

Guideline 3: Permissible at the direction of the SSHO when total volatiles, particulates, or chemical warfare agent exceeds the preset action level

Level C to Level B

Guideline 4: Permissible at the direction of the SSHO in cases where total volatiles, particulate, or chemical warfare agent measurements exceed the preset action level based on characterization of the expected contaminants.

Level D to Level B

Guideline 5: May be made at the direction of the SSHO Officer based on the magnitude of the measurements and on professional judgment.

13.3 TRAINING AND FITTING

Selecting the respirator appropriate for a given hazard is important, but equally important is using the selected device properly. Proper use can be ensured by careful training of users and by maintenance of respiratory protective devices.

13.3.1 Training

Respirator training is required as part of the initial training course conducted for workers who are to perform hazardous waste operations and is also required in the annual refresher training provided to workers performing hazardous waste activities. Both types of training will address the subjects in Table 2.

Project-specific respirator training will be offered by the Site Safety and Health Officer as part of the initial on-site training.

13.3.2 Respirator Fit Testing

13.3.2.1 All respirators that rely on a mask-to-face seal need to be checked with either qualitative or quantitative methods to determine whether the mask provides an acceptable fit to the wearer. The qualitative fit test procedures rely on a subjective sensation (taste, irritation, smell) of the respirator wearer to a particular test agent while the quantitative test uses instruments to measure face seal leakage. The relative workplace exposure level determines what constitutes an acceptable fit and which fit test procedure is required. For negative pressure air purifying respirators, users may rely on either a qualitative or a quantitative fit test procedure for exposure levels less than 100 times the occupational exposure limit. Exposure levels greater than 100 times the occupational exposure limit must utilize a quantitative fit test procedure for these respirators. Fit testing of tight-fitting atmosphere supplying respirators and tight-fitting, powered air-purifying respirators shall be accomplished by performing quantitative or

qualitative fit testing in the negative pressure mode. In all instances, the fit test must be made with the same make, model, style, and size of respirator that will be used in the field.

13.3.2.1.1 General Requirements

The employee shall evaluate respirator fit using the following procedures:

- The worker shall be allowed to choose the most acceptable respirator from a sufficient number of respirator models and sizes so that the respirator is acceptable to, and correctly fits, the user.

- Prior to the selection process, the worker shall be shown how to put on a respirator, how it should be positioned on the face, how to set strap tension, and how to determine an acceptable fit. A mirror shall be available to assist the subject in evaluating the fit and positioning of the respirator.

- The worker shall be informed that he or she is being asked to select the respirator that provides the most acceptable fit. Each respirator represents a different size and shape, and if fitted and used properly, will provide adequate protection.

- The worker shall be instructed to hold each chosen face-piece up to the face and eliminate those that obviously do not give an acceptable fit.

- The more acceptable face-pieces are noted in case the one selected proves unacceptable; the most comfortable mask is donned and worn at least five minutes to assess comfort.

13.3.2.2 After the worker has determined the respirator of greatest comfort, that person shall conduct a negative and positive pressure fit checks (see below) or other fit checks recommended by the respirator manufacturer. Another face-piece shall be selected and re-tested if the worker fails the fit checks.

13.3.2.3 Fit testing shall not be conducted if there is any hair growth between the skin and the face-piece sealing surface, such as stubble beard growth, beard, mustache, or sideburns which cross the respirator sealing surface. Any type of apparel that interferes with a satisfactory fit shall be altered or removed. If the worker exhibits difficulty in breathing, the test shall be discontinued.

13.3.2.4 After the successful completion of the fit checks, the respirator fit shall be tested using either the qualitative or quantitative fit test method presented in Attachment A. No matter which test protocol is used, the employee shall be given a description of the fit test protocol and their responsibility during the test procedure. The fit test shall be performed while the worker is wearing any applicable safety equipment that may be worn during actual respirator use, which could interfere with respirator fit. The following test exercises must be performed during fit testing:

- Normal breathing. In a normal standing position, without talking, the subject shall breathe normally.

- Deep breathing, as during heavy exertion.
- Side-to-side and up-and-down head movements. These movements should not be exaggerated, but should approximate those that take place on the job.
- Talking. This is most easily accomplished by reading a prepared text (e.g., Rainbow Passage) loudly enough to be understood by someone standing nearby.
- Grimace. The worker shall grimace by smiling or frowning (this applies only to quantitative testing, it is not performed for qualitative fit testing).
- Bending over. The worker shall bend at the waist as if to touch his or her toes.
- Normal breathing (repeat of first bullet)

13.3.2.5 Each test exercise shall be performed for one minute except for the grimace exercise that shall be performed for 15 seconds. The worker shall be questioned by the SSHO regarding the comfort of the respirator upon completion of the protocol. If it has become unacceptable, another model of respirator shall be tried. The respirator shall not be adjusted once the fit test exercises begin. Any adjustment voids the test, and the fit test must be repeated. After the fit test has been successfully completed, a fit test log Form 1 or 2 will be issued to the worker. A copy of the log will be maintained by the SSHO.

13.3.3 Daily Qualitative Fit Checks

Each employee is responsible for performing daily qualitative fit checks of their assigned air purifying respirator prior to entry into a hazardous atmosphere. The daily determination of fit will consist of a negative and positive pressure fit check as described below.

13.3.3.1 The Negative Pressure Test

In this test, the user closes off the inlet of the canister, cartridge, or filter by covering it with the palm of their hand; inhales gently so that the face-piece collapses slightly; and holds their breath for about 10 seconds. If the face-piece remains slightly collapsed and no inward leakage is detected, the respirator is probably functioning correctly.

13.3.3.2 The Positive Pressure Test

This test is conducted by closing off the exhalation valve and exhaling gently into the face-piece. The fit is considered satisfactory if slight positive pressure can be built up inside the face-piece without any evidence of outward leakage.

Table 2
Respirator Training Outline

Lecture and Discussion
Discussion of classification of respirators
Discussion of respirator capabilities and limitations
Instruction on setting “action levels”
Instruction on OSHA Standard for respiratory protection
Proper fitting
Classroom and field training in recognizing and dealing with emergencies
Workshop and Field Exercise
Field exercise in Levels A, B, and C protective ensembles
Disassembly and reassembly of respirators emphasizing components, their function, and their relation to the overall function of the respirator
Inspection of respirators
Proper donning and field fit testing
Fit testing with a test atmosphere
Cleaning, maintenance, and storage

13.4 RESPIRATOR INSPECTION, CLEANING MAINTENANCE, AND STORAGE

Respirator inspection, cleaning, and maintenance is an integral part of the overall respirator program. Wearing a dirty, poorly maintained, or malfunctioning respirator is, in one sense, more dangerous than not wearing a respirator at all. The employee wearing a defective device thinks they are protected when, in reality, they are not.

13.4.1 Inspection

It is imperative that periodic inspections of respirators be done. Inspections for three types of respirators are described in detail below.

13.4.1.1 Air-Purifying Respirators. Each individual must inspect his or her air-purifying respirator before and after each use. Form 3 lists the items to be checked during the inspection of an air-purifying respirator.

13.4.1.2 Self-Contained Breathing Apparatus. Self-contained breathing apparatuses (SCBA) will receive a thorough inspection by the Site Safety and Health Officer prior to beginning work and at regular monthly intervals thereafter (Form 4). Prior to each days use, workers must inspect their individual face-piece assembly as listed on the daily inspection checklist (Form 5).

13.4.1.3 Air line Respirator. Prior to and following each use, the air line system will be inspected. Form 6 contains a list of inspection items.

13.4.2 Cleaning and Storage

Users of respiratory protection are responsible for inspecting and cleaning all respirators following each use. Cleaning is done using a commercial cleaner-sanitizer followed by a thorough rinse and air drying. After cleaning, sanitizing, and inspecting the respirator, the user will repackage and store the respirator in an area protected against dust, sunlight, heat, extreme cold, excessive moisture, and damaging chemicals. Each respirator face-piece usually comes in a plastic bag supplied by the manufacturer. This bag will be retained and used for respirator storage. The respirators must be packed and stored so the exhalation valve rests in a normal position.

13.4.2.1 Maintenance. Continued usage of respirators will require periodic repair or replacement of component parts of the equipment. Replacement of parts and repair of air-purifying respirators, in most cases, presents few problems. The manufacturer will provide replacement parts. Replacement parts for respiratory protective devices must be those of the manufacturer of the equipment. Substitution of parts from a different brand or type of respirator will invalidate the approval of the respirator. Maintenance of SCBA equipment is more difficult, primarily because of the valve and regulator assembly. Because of this, regulations require that SCBA equipment be returned to the manufacturer for adjustment or repair. Users shall not perform any maintenance on the regulators or valves of SCBA or air line respirators. The SSHO will be notified of

needed maintenance/repair and he will ensure required maintenance/repair is performed by manufacturer certified personnel/firms.

FORM 1 QUALITATIVE FIT TEST LOG

Personnel:

Employee: _____

Fit test administrator: _____

Respirator:

Manufacturer: _____

Model: _____

Size: _____

ID Number: _____

Dates:

_____
(date of test)

_____
(date of last physical)

_____
(date of next scheduled fit test)

Comfort:

Very comfortable: _____

Comfortable: _____

Intolerable: _____

Needs prescription inserts: _____
(yes/no)

_____ fit _____ no fit

Test Protocol

Pressure fit check:

_____ positive

_____ negative

Test atmosphere:

_____ isoamyl acetate

_____ stannic oxychloride

_____ other (specify)

Remarks: _____

_____

_____

_____

FORM 2 QUANTITATIVE FIT TEST LOG

Personnel:

Employee: _____

Fit test administrator: _____

Respirator:

Manufacturer: _____

Model: _____

Size: _____

ID Number: _____

Comfort:

Very comfortable: _____

Comfortable: _____

Intolerable: _____

Needs prescription inserts: _____ (yes/no)

Dates:

_____ (date of test)

_____ (date of last physical)

_____ (date of next scheduled fit test)

Portacount instrument

_____ model and manufacturer

_____ Serial number

Test results (attach strip chart):

-_____ FIT Factor

_____ Pass _____ Did not Pass

Remarks: _____

_____

_____

FORM 3 AIR-PURIFYING RESPIRATOR WEEKLY INSPECTION CHECKLIST

Rubber face piece - check for:

_____ excessive dirt (clean all dirt from face piece);

_____ cracks, tears, or holes (obtain new face piece);

_____ distortion (allow face piece to "sit" free from any constraints and see if distortion disappears; if not, obtain new face piece); and

_____ cracked, scratched, or loose-fitting lenses.

Head harness - check for:

_____ breaks or tears (replace head straps);

_____ loss of elasticity (replace head straps); and

_____ broken or malfunctioning buckles or retaining clips (obtain new buckles).

Inhalation valve, exhalation valve - check for:

_____ detergent residue, dust particles, or dirt on valve or valve seat (clean residue with soap and water);

_____ cracks, tears, or distortion in the valve material or valve seat (clean residue with soap and water); and

_____ missing or defective valve cover (obtain valve cover from program supervisor).

Cartridges and canisters – check for:

_____ proper filter for the hazard (verify with Project Safety and Health Officer);

_____ missing or worn gaskets (contact warehouse manager for replacement);

_____ worn filter and face-piece threads (replace filter or face piece); and

_____ cracks or dents in filter housing (replace filter).

FORM 4 SELF-CONTAINED BREATHING APPARATUS MONTHLY INSPECTION CHECKLIST

Device: _____ Serial #: _____

Date inspected: _____ Inspected by: _____

Rubber face piece: _____ Antifogging Agent Application on lenses: _____

Exhalaration valve

Rubber head harness: _____ Air Cylinder Pressure: _____

Rubber hose: _____ Bypass Valve: _____

O-rings: _____ Mainline Valve: _____

Face piece Lens: _____ Alarm: _____

Harness: _____ Regulator Diaphragm: _____

Backpack: _____ Regulator Function: _____

Washing/Sanitizing: _____ Demand Valve: _____

Operating Instructions: _____ Pressure Demand: _____

Hydrostatic test date: _____ Storage Box: _____

No visible damage: _____

Remarks: _____

_____

_____

_____

FORM 5 SELF-CONTAINED BREATHING APPARATUS WEEKLY INSPECTION CHECKLIST

Rubber face piece - check for:

_____ Excessive dirt (clean all dirt from face piece);

_____ Cracks, tears, or holed (obtain new face piece);

_____ Distortion (allow face piece to "sit" free from any constraints and see if distortion disappears; if not, obtain new face piece); and

_____ Cracked, scratched, or loose-fitting lenses.

Head harness - check for:

_____ Breaks or tears (replace head straps);

_____ Loss of elasticity (replace head straps); and

_____ Broken or malfunctioning buckles or retaining clips (obtain new buckles).

FORM 6 AIR LINE RESPIRATOR WITH EMERGENCY EGRESS SCBA INSPECTION CHECKLIST

Serial #: _____

Date inspected: _____

Inspected by: _____

Rubber face piece torn or ripped:	YES	NO
Head harness - torn or ripped:	YES	NO
Is SCBA cylinder fully pressurized:	YES	NO
Are air lines clean and serviceable:	YES	NO
Rotate bypass valve hand wheel while air line is hooked to air source does bypass function?	YES	NO
Check SCBA cylinder for deep scratches or gouges.	YES	NO
Does carrying pouch or harness have signs of excessive wear or damage?	YES	NO
Is face piece lens cracked or scratched?	YES	NO
Has the face piece been washed/sanitized since it was last worn?	YES	NO
Has antifogging solution been applied on lens?	YES	NO
Stow the air lines and face masks.	YES	NO

ATTACHMENT A
FIT TEST PROTOCOLS

ATTACHMENT A
FIT TEST PROTOCOLS

QUALITATIVE FIT TEST (QLFT) PROTOCOLS

General

The SSHO must able to prepare test solutions, calibrate equipment, perform the tests properly, recognize invalid tests, and ensure that test equipment is working properly**.** QLFT equipment must be kept clean and well maintained so it operates within the parameters for which it was designed.

Isoamyl Acetate Protocol

This protocol is appropriate for the fit testing of respirators with organic vapor cartridges or canisters.

Odor Threshold Screening

Odor threshold screening, performed without wearing a respirator, is intended to determine if the individual tested can detect the odor of isoamyl acetate at low levels.

1. Three 1-liter glass jars with metal lids are required.
2. Odor-free water (e.g., distilled or spring water) at approximately 25-deg. C (77 deg. F) shall be used for the solutions.
3. The isoamyl acetate (IAA) (also known at isopentyl acetate) stock solution is prepared by adding 1-ml of pure IAA to 800-ml of odor-free water in a 1-liter jar, closing the lid and shaking for 30-seconds. A new solution shall be prepared at least weekly.
4. The screening test shall be conducted in a room separate from the room used for actual fit testing. The 2 rooms shall be well-ventilated to prevent the odor of IAA from becoming evident in the general room air where testing takes place.
5. The odor test solution is prepared in a second jar by placing 0.4-ml of the stock solution into 500-ml of odor-free water using a clean dropper or pipette. The solution shall be shaken for 30-seconds and allowed to stand for 2 to 3 minutes so that the IAA concentration above the liquid may reach equilibrium. This solution shall be used for only 1-day.
6. A test blank shall be prepared in a third jar by adding 500-cc of odor-free water.

7. The odor test and test blank jar lids shall be labeled (e.g., one and two) for jar identification. Labels shall be placed on the lids so that they can be peeled off periodically and switched to maintain the integrity of the test.

8. The following instruction shall be typed on a card and placed on the table in front of the 2 test jars (i.e., one and two): "The purpose of this test is to determine if you can smell banana oil at a low concentration. The two bottles in front of you contain water. One of these bottles also contains a small amount of banana oil. Be sure the covers are on tight, and then shake each bottle for two seconds. Unscrew the lid of each bottle, one at a time, and sniff at the mouth of the bottle. Indicate to the test conductor which bottle contains banana oil."

9. The mixtures used in the IAA odor detection test shall be prepared in an area separate from where the test is performed, in order to prevent olfactory fatigue in the subject.

10. If the test subject is unable to identify the jar containing the odor test solution, the IAA qualitative fit test shall not be performed.

11. If the test subject correctly identifies the jar containing the odor test solution, the test subject may proceed to respirator selection and fit testing.

Isoamyl Acetate Fit Test

1. The fit test chamber shall be a clear 55-gallon drum liner suspended inverted over a 2-foot diameter frame so that the top of the chamber is about 6 inches above the test subject's head. If no drum liner is available, a similar chamber shall be constructed using plastic sheeting. The inside top center of the chamber shall have a small hook attached.

2. Each respirator used for the fitting and fit testing shall be equipped with organic vapor cartridges or offer protection against organic vapors.

3. After selecting, donning, and properly adjusting a respirator, the test subject shall wear it to the fit testing room. This room shall be separate from the room used for odor threshold screening and respirator selection, and shall be well-ventilated, as by an exhaust fan or lab hood, to prevent general room contamination.

4. A copy of the test exercises and any prepared text from which the subject is to read shall be taped to the inside of the test chamber.

5. Upon entering the test chamber, the test subject shall be given a 6-inch by 5-inch piece of paper towel, or other porous, absorbent, single-ply material, folded in half and wetted with 0.75 ml of pure IAA.

6. The test subject shall hang the wet towel on the hook at the top of the chamber. An IAA test swab or ampule may be substituted for the IAA wetted paper towel provided it has been demonstrated that the alternative IAA source will generate an IAA test atmosphere with a concentration equivalent to that generated by the paper towel method.

7. Allow two minutes for the IAA test concentration to stabilize before starting the fit test exercises. This would be an appropriate time to talk with the test subject; to

explain the fit test, the importance of his/her cooperation, and the purpose for the test exercises; or to demonstrate some of the exercises.

8. If at any time during the test, the subject detects the banana-like odor of IAA, the test is failed. The subject shall quickly exit from the test chamber and leave the test area to avoid olfactory fatigue.
9. If the test is failed, the subject shall return to the selection room and remove the respirator. The test subject shall repeat the odor sensitivity test, select and put on another respirator, return to the test area and again begin the fit test procedure described above. The process continues until a respirator that fits well has been found. Should the odor sensitivity test be failed, the subject shall wait at least 5 minutes before re-testing. Odor sensitivity will usually have returned by this time.
10. If the subject passes the test, the efficiency of the test procedure shall be demonstrated by having the subject break the respirator face seal and take a breath before exiting the chamber.
11. When the test subject leaves the chamber, the subject shall remove the saturated towel and return it to the person conducting the test, so that there is no significant IAA concentration buildup in the chamber during subsequent tests. The used towels shall be kept in a self-sealing plastic bag to keep the test area from being contaminated.

Irritant Smoke (Stannic Chloride) Protocol

This qualitative fit test uses a person's response to the irritating chemicals released in the "smoke" produced by a stannic chloride ventilation smoke tube to detect leakage into the respirator. The respirator to be tested must be equipped with a P-, R, or N-100 series filter (99.97% efficient filters). An enclosure shall not be used for this test. The smoke can be irritating to the eyes, lungs, and nasal passages. The Facility H&S Representative shall take precautions to minimize the test subject's exposure to irritant smoke and perform the test in a well-ventilated area.

Sensitivity Screening Check

The person to be tested must demonstrate his or her ability to detect a weak concentration of the irritant smoke.

1. The test operator shall break both ends of a ventilation smoke tube containing stannic chloride, and attach one end of the smoke tube to a low flow air pump set to deliver 200 milliliters per minute, or an aspirator squeeze bulb. The test operator shall cover the other end of the smoke tube with a short piece of tubing to prevent potential injury from the jagged end of the smoke tube.
2. The test operator shall advise the test subject that the smoke can be irritating to the eyes, lungs, and nasal passages and instruct the subject to keep his or her eyes closed while the test is performed.
3. The test subject shall be allowed to smell a weak concentration of the irritant smoke before the respirator is donned to become familiar with its irritating properties and to

determine if he or she can detect the irritating properties of the smoke. The test operator shall carefully direct a small amount of the irritant smoke in the test subject's direction to determine that he or she can detect it.

Irritant Smoke Fit Test Procedure

1. The person being fit tested shall don the respirator without assistance, and perform the required user seal check(s).
2. The test subject shall be instructed to keep his or her eyes closed.
3. The test operator shall direct the stream of irritant smoke from the smoke tube toward the face seal area of the test subject, using the low flow pump or the squeeze bulb. The test operator shall begin at least 12 inches from the face-piece and move the smoke stream around the whole perimeter of the mask. The operator shall gradually make two more passes around the perimeter of the mask, moving to within six inches of the respirator.
4. If the person being tested has not had an involuntary response and/or detected the irritant smoke, proceed with the test exercises.
5. The exercises identified in this appendix shall be performed by the test subject while the respirator seal is being continually challenged by the smoke, directed around the perimeter of the respirator at a distance of six inches.
6. If the person being fit tested reports detecting the irritant smoke at any time, the test is failed. The person being re-tested must repeat the entire sensitivity check and fit test procedure.
7. Each test subject passing the irritant smoke test without evidence of a response (involuntary cough, irritation) shall be given a second sensitivity screening check. This check involves squeezing a small smoke stream from the tube after the respirator has been removed. If the test subject fails to evoke a response, the fit test is voided.
8. If a response is produced during this second sensitivity check, then the fit test is passed.

QUANTITATIVE FIT TEST (QNFT) PROTOCOL

General

The SSHO administering the QNFT must able to calibrate equipment, perform the tests properly, recognize invalid tests, and ensure that test equipment is working properly**.** QNFT equipment must be kept clean and well maintained so it operates within the parameters for which it was designed.

Ambient aerosol condensation nuclei counter (CNC) quantitative fit testing protocol.

The ambient aerosol condensation nuclei counter (CNC) quantitative fit testing (Portacount) protocol quantitatively fit tests respirators with the use of a probe. The probed respirator is only used for quantitative fit tests. A probed respirator has a special sampling device, installed on the respirator that allows the probe to sample the air from

inside the mask. A probed respirator is required for each make, style, model, and size that the employer uses and can be obtained from the respirator manufacturer or distributor. The CNC instrument manufacturer, TSI Inc., also provides probe attachments (TSI sampling adapters) that permit fit testing in an employee's own respirator. A minimum fit factor pass level of at least 100 is necessary for a half mask respirator and a minimum fit factor pass level of at least 500 is required for a full-facepiece negative pressure respirator. The entire screening and testing procedure shall be explained to the test subject prior to the conduct of the screening test.

Portacount Fit Test Requirements

1. Check the respirator to make sure the sampling probe and line are properly attached to the face-piece and that the respirator is fitted with a particulate filter capable of preventing significant penetration by the ambient particles used for the fit test per manufacturer's instruction.
2. Instruct the person to be tested to don the respirator for five minutes before the fit test starts. This purges the ambient particles trapped inside the respirator and permits the wearer to make certain the respirator is comfortable. This individual shall already have been trained on how to wear the respirator properly.
3. Check the following conditions for the adequacy of the respirator fit: Chin properly placed; Adequate trap tension, not overly tightened; Fit across nose bridge; Respirator of proper size to span distance from nose to chin; Tendency of the respirator to slip; Self-observation in a mirror to evaluate fit and respirator position.
4. Have the person wearing the respirator do a user seal check. If leakage is detected, determine the cause. If leakage is from a poorly fitting face-piece, try another size of the same model respirator, or another model of respirator.
5. Follow the manufacturer's instructions for operating the Portacount and proceed with the test.
6. The test subject shall be instructed to perform the exercises
7. After the test exercises, the test subject shall be questioned by the test conductor regarding the comfort of the respirator upon completion of the protocol. If it has become unacceptable, another model of respirator shall be tried.

Portacount Test Instrument

The Portacount will automatically stop and calculate the overall fit factor for the entire set of exercises. The overall fit factor is what counts. The pass or fail message will indicate whether the test was successful. If the test was a pass, the fit test is over. Since the pass or fail criterion of the Portacount is user programmable, the SSHO shall ensure that the pass or fail criterion meet the requirements for minimum respirator performance (fit factor of 100 for half face mask, fit factor of 500 for full-facepiece mask). A record of the test needs to be maintained in accordance with this appendix. The record must contain the test subject's name; overall fit factor; make, model, style, and size of respirator used; the fit test operator's name, and the date of testing.

ATTACHMENT B
RESPIRATOR CARTRIDGE CHANGEOUT SCHEDULE

USES AND LIMITATIONS OF RESPIRATORS

The purpose of this section is to outline the uses and limitations of the respirators that could potentially be used during the CWM SI Program. Workers assigned to tasks that may involve the use of respiratory protection must be familiar with the requirements of this section, the Respiratory Protection Program SOP, and the Cartridge Change-Out Procedure (Section 13 of the SOP document).

Air-Purifying Respirator

The full-face air-purifying respirator that has been selected for work during the CWM SI Program is the 3M Model # FR-M40B gas mask with a 3M model FR-15-CBRN canister. Both mask and canister are NIOSH CBRN-approved. This respirator will only be used when:

- CA in air is detected at a concentration less than the short term exposure limit (STEL), or
- Organic vapors are detected at concentrations between 10 to100 ppm.

Downrange and PDS personnel may use a Level C ensemble to protect against exposure up to the mustard STEL for up to 3 hours. After 3 hours in the CA environment, the FR-15-CBRN canister must be changed. In addition, the 3M full face-piece FR-M40 mask cannot be used beyond 8 hours after initial exposure to CA to avoid the possibility of agent permeation. If liquid exposure is encountered (i.e. mustard droplets [particulates] contact the mask), the respirator cannot be used beyond 2 hrs. Both mask and canisters are to be disposed of as 3X scrap at the end of the day that exposure to mustard occurred.

Based on the manufacturer's recommendations, workers performing Modified Level D operations must change the canister every 30 days irrespective of respirator use (i.e. once the canister is removed from original packaging and exposed to the environment its useful life is 30 days). Canisters not exposed to agent may be disposed of as normal waste.

In instances where down range personnel use a Level C ensemble to protect against elevated organic vapors (fuel), change-out of the FR-15-CBRN canister must be performed daily. The daily change-out schedule is protective for workers[1]. Spent canisters used for protection from organic vapors can be disposed of with normal waste.

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[1] The assumptions of: 32ºC ambient temperature , RH>65%, organic vapor concentration of 100ppm [100 ppm petroleum distillates], and medium work activity by down field personnel were input into the 3M service life software to calculate change schedule)

ATTACHMENT B
CARTRIDGE CHANGE-OUT PROGRAM

OSHA Requirement

The Occupational Safety and Health Administration (OSHA) no longer permits the detection of a substance's odor as the primary basis for determining when the service life of a cartridge or canister is expended. Under the revised respiratory protection standard (29 CFR 1910.134) OSHA requires employers to develop and implement a change schedule for cartridges or canisters based on objective information or data when an end of service life indicator (ESLI) is not available.

In order to comply with the above OSHA requirement, this written program has been established by Parsons for work at site 8. All Parsons and subcontract personnel are required to comply with this program. A copy of this program will be maintained at the site trailer for inspection by employees

Chemical Hazards

The first step in developing a change out schedule is to determine the chemicals that may be present at Site 8. Table D1-2.2 of the Work Plan for the CWM Removal Action at Site 8 lists potential contaminants that may have been used. Mustard and lewisite are potentially the most hazardous substances that could be encountered at Site 8. . Phosgene, cyanogen chloride, and chlororacteophenone in containers (dissolved in benzene or carbon tetrachloride) or in chemical munitions may also be present along with any fuels used at Site 8.

Respirator and Cartridge Selection

The full face air purifying respirator that has been selected for work at CWM SI project sites is the 3M model # FR-M40B gas mask with a 3M model FR-15-CBRN canister. Both mask and canister are NIOSH CBNR approved. This respirator will be used when:

1) Suspected RCWM has been encountered during modified level D operations. Under this situation workers in the exclusion will don their APR and exit the exclusion zone.
2) Organic vapors are detected at concentrations between 10-100 ppm and RCWM is not present.

Change-Out Schedule

The useful service life of the model FR-15-CBRN canister is dependent upon the breathing rate of the wearer (a function of the task being performed), the volatility and

concentration of the contaminant, and environmental conditions such as temperature and humidity. The CBRN certification process involves the testing of cartridges and canisters by NIOSH against a challenge concentration of 50mg/m^3 of HD vapor, 210mg/m^3 of Sarin (GB) vapor, and 0.43mls of liquid HD. Tests are performed at 25ºC; 25 and 80 percent relative humidity; and a flow rate of 64L/min. The results of the test for the 3M FR-M40B mask with the FR-15-CBRN canister indicate that this assembly has a minimum service life of 8 hours against 50mg/m^3 distilled sulfur mustard or 210mg/m^3 Sarin. The mask also has a service life of at least 2 hours when exposed to 0.43 mls of HD liquid. It is important to note that NIOSH has only approved this respirator/ canister assembly for a 15 minute duration in an agent environment. Therefore, the mask may only be used for escape purposes when agent is detected. Both the respirator and canister must be disposed of after exposure to agent. Also note that any canister out of its original factory packaging and exposed to environmental conditions (i.e. humidity) must be changed every 30 calendar days irrespective of use (i.e. worker performing modified level D operations must change canisters every 30 days).

In instances where down field personnel use a level C ensemble to protect against elevated organic vapor concentrations (fuel, benzene, and carbon tetrachloride), change-out of the FR-15-CBRN cartridge will be performed daily. The daily change-out schedule is protective for workers[1] and complies with the cartridge replacement schedule required under the OSHA benzene standard (29 CFR 1910.1028[g][2]).

It is important that workers thoroughly decontaminate their respirators after every use. Procedure for the proper storage, maintenance, and cleaning of respirators can be found in Section 13, Standard Operating Procedures.

Responsibilities

The Project Safety and Health Officer is responsible for the following:

- Verifying that team members conducting the field investigation have received training in the selection and use of respirators;
- Determining the degree of respiratory protection required for each field task or operation;
- Ensuring site-specific training is performed prior to on-site activities; and
- Ensuring records of respirator use are maintained.

The Site Safety and Health Officer is responsible for ensuring the following:

- Maintaining a record of respirator use;
- Verifying that respirators are inspected, maintained, and cleaned properly;
- Verifying that canister are changed out in accordance with SOP

[1] The assumptions of: 32ºC ambient temperature , RH>65%, organic vapor concentration of 100ppm [50ppm carbon tetrachloride & 50ppm benzene], and medium work activity by down field personnel were input into the 3M service life software to calculate change schedule)

- Maintaining copies of fit test and medical records;
- Performing fit-testing as needed;
- Distribution of respirators to field team member.

All project team members are responsible for the following:

- Reading and conforming to the APP;
- Presenting a copy of their fit test results to the SSHO prior to receipt of a respirator;
- Inspecting and cleaning of their assigned respirator before and after each use;
- Storing respirators in a convenient, clean and sanitary location when not in use;
- Reporting any perceived problems or difficulties with respiratory equipment to the SSHO; and
- Changing cartridges in accordance with this SOP.

FINAL

ALL TERRAIN VEHICLE SAFETY

ALL TERRAIN VEHICLE SAFETY

14.1 OBJECTIVE

The use of All Terrain Vehicles (ATVs) on site becomes practical and necessary based on certain site locations and site conditions. The safe use of these ATVs must be paramount during site operations in order to protect the health and well being of site personnel as well as visitors. Accordingly, the objective of this document is to develop an effective ATV safety program to be instituted for sites where these types of vehicles will be used.

14.2 PURPOSE

The purpose of this SOP is to establish requirements for training and the safe operation of ATVs while conducting work on site.

14.3 DEFINITIONS

ATV definitions in accordance with EM 385-1-1 3 Nov 03 are as follows:

- ATV Class I, Category G: An ATV intended for general recreational and utility use.
- ATV Class I, Category U: An ATV intended for primarily utility use
- ATV Class II: A motorized vehicle with a width that exceeds 50 inches, or having a dry weight that exceeds 800 lbs, traveling on four or more low profile, low pressure tires (10PSI or less) and having a bench seat

14.4 TRAINING

Operators of Class I ATVs will require the following training:

- Nationally accredited ATV training course (Specialty Vehicles Institute of America) and subsequently passing an operating skills tests prior to using a class I ATV on site

Operators of Class II ATVs will require the following training:

- Attending a course on ATV Class II safety conducted by a qualified defensive driving instructor or an instructor with ATV knowledge. The course shall include information from the ATV manufacturer (tapes, driving manuals etc.)

- The course shall be based on subjects found in a regular ATV course (Specialty Vehicle Institute of America) including such topics as maximum speed, handling, grade to drive on, and shall include classroom instruction and field work.

14.5 RESPONSIBILITIES

14.5.1 Driver/Operator. The driver/operator of contractor owned, rented, or leased ATV is responsible for complying with the following guidelines.

- Proper use of personal protective equipment (PPE) while operating a Class I ATV. Required PPE includes gloves, an approved motorcycle helmet with full-face shield or goggles.
- Passengers are prohibited on Class I ATVs.
- Do not exceed the manufacturer's recommended payload.
- ATV will be operated on paved roads only, provided that paved road operation is allowed by the manufacturer.
- ATV operation is limited to daylight hours unless the vehicle is equipped with proper lighting for night usage.
- Do not operate an ATV with less than 4 wheels.
- Report any and all mechanical problems immediately.
- Prior to operation ensure the following items are in working order; warning signal device (horn), tail lights, and stop lights.
- Maintain the recommended amount of air pressure in the vehicle tires.
- ATV must be equipped with a muffler and spark arrester.
- Class II ATV (John Deere Gator, Kawasaki Mule, etc.) must be equipped with a rollover protective structure.
- The operator's manual will remain on the vehicle and be sufficiently protected from the elements.

14.5.2 Site Safety and Health Officer. The Site Safety and Health Officer (SSHO) is responsible for the following:

- Ensuring that all vehicle accident reports are processed and the required number of copies submitted to local, state, and federal agencies, to the resource manager and to the insurance carrier if applicable.
- Ensuring that appropriate individuals, beginning with the Project Safety and Health Officer, and the Corporate Health and Safety Manager are notified by telephone of accidents that involve fatalities or multiple serious injuries.
- Verifying that all accidents are documented and investigated. The investigation should be of sufficient depth to determine the cause and action required to prevent recurrence. Copies of all motor vehicle investigations

shall be forwarded to the Project Safety and Health Officer and the Corporate Health and Safety Manager.

- Ensuring that during the selection process for leased or purchased vehicles, consideration is given to obtaining vehicles with essential safety devices.

14.5.3 Defects. All defects shall be corrected before the vehicle is placed in service.

14.6 SEAT BELTS

OSHA has determined that the use of seat belts in motor vehicles can significantly reduce the seriousness of occupational motor vehicle accidents. Accordingly, all contractor employees driving Class II ATVs will ensure that all occupants use seat belts, if available on the vehicle.

14.7 STATE AND LOCAL LAWS

- Drivers shall operate vehicles in accordance with the law.
- Drivers shall not operate vehicles that are known to be defective or not in compliance with the law.
- Drivers are personally liable and responsible for the consequences of state and community violations.

14.8 SAFE DRIVING PRACTICES

- Personnel shall operate vehicles in a defensive manner, i.e., remain alert and aware of surroundings, anticipate potential hazards based on existing conditions, and drive in such a manner as to avoid hazards around the site.
- Personnel operating ATVs shall be considerate of, and courteous to, the traveling public and/or pedestrians and should yield the right-of-way to avoid accidents.
- Personnel shall drive at a safe speed while operating the ATV.
- Personnel shall drive at all times with sufficient space around the vehicle to provide time to see conflicts arising, to react quickly, and to stop. These five keys to defensive driving will help accomplish a good space cushion:
  - Aim high in steering.
  - Get the big picture.
  - Keep your eyes moving.
  - Leave yourself an out.
  - Make sure they see you.

14.9 GENERAL SAFETY RULES

- **Blind Curves -** Slow down and sound horn when approaching a blind curve.

- **Driver's License** - Operation of an ATV without a valid operator's license is prohibited.
- **Gasoline** - Gasoline and other flammable/combustible liquids shall not be carried in or on vehicles other than in permanent gas tanks or in UL approved safety cans. UL approved safety containers must be properly secured when being carried in the back of ATVs.
- **Laws and Regulations** - Learn and obey all local, state, and federal laws.
- **Parking** - Equipment and vehicles shall be parked off roads and highways whenever possible. Wheels should be blocked or chocked.
- **Pedestrians** - Be constantly alert for pedestrians. Remember they have the right-of-way.
- **Slow Down** - Slow down and use caution at blind intersections and crossings when visibility is limited or when passing work crews.
- **Visibility** - Make sure all windshields, rear windows, mirrors, and lights are clean before moving vehicles.
- **Warning Signs and Traffic Signals** - Be alert for and strictly obey all directional and warning signs and signals.
- **Seat Belts** - Operator and passengers must keep seat belts fastened at all times when vehicle is in motion.
- **Backing Up** - Never start or back up equipment or vehicles until you are sure the way is clear. If necessary, have another person guide you safely. Back up alarms, when required, must be working and audible over the surrounding noise.
- **Ear Protection** - Earplugs or other approved ear protection shall be worn when necessary.
- **Fueling and Repair** - No fueling or repair shall be made to equipment while it is in operations. The motor must be turned off.
- **Housekeeping** - Operators should keep deck plates, steps, rungs, and hand rails on equipment free of grease, oil, ice, and mud. The inside of the cabs shall also be kept clean and free of flammable items.
- **Inspections**- Equipment and vehicles shall not be used until known defects or discrepancies are corrected. Inspections shall be made at the start of each shift and defects or discrepancies shall be reported to the supervisor immediately.
- **Jumping** - Jumping on or off equipment is prohibited. When climbing on or off equipment or vehicles, face the unit and use secure hand and foot holds to prevent slips and falls. Always look where you are stepping.
- **Know Your Equipment or Vehicle** - It is your responsibility to be thoroughly familiar with all features and manuals and if you are in doubt as

to correct operating techniques or safety features, ask your supervisor at once.

- **Overloading** - Avoid overloading vehicle beds. Excessive material can damage the unit and falling material can cause serious injury.
- **Riders** - Only authorized persons will be permitted to ride in equipment or vehicles.
- **Securing Loads** - The operator of the vehicle is responsible for ensuring that their load is secure and will not shift during transport.
- **Overhanging and Oversize Loads** - When it is necessary to transport overhanging or oversize loads, the appropriate signs and red flags and red lights will be used.
- **Safety Chains** - Safety chains of sufficient size and strength shall be installed on all trailers being towed.
- **Safety Hooks** - Use safety hooks with latches on all winch cables.
- **Railroad Tracks** - Stop and look both ways before crossing railroad tracks or before driving onto a road from a path or trail.
- **Stopping** - Do not stop vehicles in the middle of the road to talk to occupants in another vehicle. Always pull to the side or off the road to maintain a clear, safe road.
- **Turn Signals** - Always use turn signals, emergency and other signals as appropriate, when turning, stopping, passing, or performing other vehicle operations.
- **Vehicle Maintenance** - It is the driver's responsibility to ensure that his vehicle is in good mechanical condition before and during operation. Special emphasis should be placed on ensuring the brakes, lights, horn, windshield, tires, and steering assembly are in good order. Defects must be reported and corrected immediately.

FINAL

PROCEDURE FOR MONITORING MUSTARD

PROCEDURE FOR MONITORING MUSTARD

15.1 INTRODUCTION

This procedure covers the new general requirements for monitoring the workspace for releases of the chemical agent mustard including reference documents, organizational responsibilities, definitions, monitoring requirements, and required actions. Detailed procedures for air monitoring are provided in the Edgewood Chemical Biological Center (ECBC) Air Monitoring Plan (Appendix F of the Programmatic Work Plan). This procedure applies only to mustard agent.

15.2 REQUIREMENTS

Revised airborne exposure limits (AELs) for mustard have been adopted by the U.S. Army for chemical workers and the general population and are in effect as of 1 July 2005. The revised exposure limits apply to all chemical agent operations and activities except for tactical military operations and military training.

15.2.1 References

15.2.1.1 Memorandum, Implementation Guidance Policy for New Airborne Exposure Limits for GB, GA, GD, GF, VX, H, HD, and HT, Raymond J. Fatz, Deputy Assistant Secretary of the Army (Environment, Safety and Occupational Health) OASA (I&E), dated June 15, 2004.

15.2.1.2 Implementation Guidance Policy for Revised Airborne Exposure Limits for GB, GA, GD, GF, VX, H, HD, and HT, Department of the Army, Office of the Assistant Secretary of the Army Installations and Environment, 15 June 2004.

15.2.1.3 Interim Recommendations for Airborne Exposure Limits for Chemical Warfare Agents H and HD (Sulfur Mustard). Department of Human Services, Centers for Disease Control and Prevention, *Federal Register*, Vol. 69, No. 85, Monday, May 3, 2004, p. 24164-21168.

15.2.2 Organizational Responsibilities

15.2.2.1 Edgewood Chemical Biological Center (ECBC)

The responsibilities of the U.S. Army Research, Development, and Engineering Command (RDECOM), Edgewood Chemical Biological Center (ECBC) Environmental Monitoring Laboratory include:

- Collect and retain all chemical agent related air monitoring data.

- Conduct on-site analysis and confirmation for air samples and headspace samples collected from soil, scrap, PPE and bulk items samples.

15.2.2.2 Parsons

Parsons is responsible for overall coordination of the field operations. Key personnel related to the air monitoring are the Site Manager and the SSHO.

Besides directing the overall operations, the Site Manager assists the SSHO with reporting the results of monitoring with site workers and forwards monitoring records to the appropriate organizations.

The SSHO briefs the site workers on the results of air monitoring and is responsible for changes to PPE level. The SSHO is responsible for ensuring that health education materials used in worker training programs are readily accessible to all individuals with an exposure potential to mustard agents. The SSHO must also verify that all of the required health-related training has been conducted and has been renewed annually (Section 15.7).

15.3 DEFINITIONS

15.3.1 Airborne Exposure Limits

AELs are the allowable concentrations in the air for workplace and general population exposures. AELs include worker population limits (WPLs), short term exposure limits (STELs), immediately dangerous to life or health values (IDLHs) and general population limits (GPLs).

15.3.2 Excursion

An increase in the concentration of chemical agent present in an environment above a given agent concentration reference point, e.g., the concentration goes above the WPL's 8-hour time-weighted average (TWA) concentration.

15.3.3 General Population Limit (GPL)

The GPL is the maximum concentration to which the general population may be exposed 24 hours per day, 7 days per week, for a 70-year lifetime. The GPL applies to the entire general population including all ages and medical conditions. For mustard, the GPL is 0.00002 mg/m^3.

15.3.4 Immediately Dangerous to Life or Health (IDLH)

An atmosphere that poses an immediate threat to life would cause irreversible adverse health effects or would impair an individual's ability to escape from a dangerous atmosphere, regardless of PPE use. For planning purposes, the respirator wearer shall be unaffected by the environment for up to 30 minutes without any respirator being worn.

IDLH also includes atmospheres where oxygen content by volume is less than 19.5 percent. The IDLH for mustard is 0.7 mg/m^3.

15.3.5 Mustard Agent

Mustard, as used in this SOP, refers to Levinstein mustard (H), distilled mustard (HD), or mustard-agent T mixture (HT).

15.3.6 Short Term Exposure Limit (STEL)

The STEL is the maximum concentration to which unprotected chemical workers may be exposed to for up to 15 minutes continuously. The STEL for mustard is 0.003 mg/m^3.

15.3.7 Worker Population Limit (WPL)

The WPL is the maximum allowable 8-hr time-weighted average (TWA) concentration that an unmasked worker can be exposed to for an 8-hour workday and 40-hour week for 30 years without adverse effect. The WPL for mustard is 0.0004 mg/m^3.

15.4 MONITORING REQUIREMENTS

The Implementation Guidance Policy (Reference 15.2.1.2) requires that any workplace associated with, near, or surrounding activities involving the chemical agent mustard will be monitored. Monitoring is required for the Worker Population Limit (WPL) and the Short Term Exposure Limit (STEL).

15.4.1 Worker Population Limit (WPL) Monitoring

WPL monitoring will be performed for identified areas where workers may have an exposure potential to chemical agent (mustard). The monitoring may be either historical, real-time or near-real-time based on the ECBC Air Monitoring Plan for the site.

Historical monitoring is conducted using Depot Area Agent Monitoring System (DAAMS) located at the work site. Near-real-time monitoring is conducted using the Miniature Chemical Agent Monitoring System (MINICAMS).

15.4.2 Short-Term Exposure Limit (STEL) Monitoring

Areas involving operations where a release of chemical agent into the operating environment at levels exceeding the STEL can reasonably be expected to occur will be monitored. At this site, this will be defined as areas where excavation for suspected RCWM occurs or other locations where a potential release of chemical agent might occur. The monitoring will be conducted using equipment capable of measuring the chemical agent level in real-time or near-real-time ensuring that the duration of 15 minutes associated with the STEL is not exceeded. The monitoring equipment must be set to an alarm or notification level to account for the accuracy and precision of the equipment being used. Records will be maintained of excursions above the STEL

including location, time, date, and the names of potentially exposed personnel, at a minimum.

15.5 EXCEEDENCE OF AIRBORNE EXPOSURE LIMITS

15.5.1 Excursion of WPL

When monitoring, regardless of monitoring method, indicates excursions of chemical agent levels above the WPL, the following actions will be completed:

- Restrict the area until the source is identified and corrected and subsequent monitoring indicates chemical agent levels are below the WPL. Demonstration that the chemical agent levels are below the WPL will be provided by two consecutive full-shift (8-hr) monitoring events (using the DAAMS). Restrictions include administrative controls (reducing stay time), increased PPE, and engineering controls (running filtration system), at the discretion of the SSHO.

- Notice of the WPL excursion will be provided to all site workers. At the first opportunity such as the next site safety briefing, the SSHO will notify the site workers on the WPL excursion. Written notice will be posted at the site office, command post, or other convenient location using the WPL Excursion Notice form attached to this SOP. The notice must include the following information:

  - Location of the WPL excursion (e.g., anomaly ID or grid coordinates).

  - Period when the excursion occurred (e.g., between 0900 and 1300 hours).

  - Name of chemical agent detected (e.g., mustard).

  - WPL of chemical agent in mg/m^3 (e.g., 0.0004 mg/m^3 for mustard).

  - Amount of exceedence in mg/m^3.

  - Names of exposed employees (when exposure results are sent to Qualisys, the Social Security Numbers of exposed employees must be included with the monitoring results).

  - Statement of future action to limit future excursions.

- Notice must also be provided to a competent medical authority. The SSHO will send a copy of the WPL Excursion Notice to Qualisys (see Emergency Contact Sheet). The information provided to Qualisys must include the Social Security Numbers of the potentially exposed workers. This may be done directly or through the PSHO. The same information contained in the WPL Excursion Notice plus the contact information for the SSHO must be provided.

- WPL Excursion Response Plan. The Command Post team (including the Site Manager, SSHO, and USAESCH Safety Specialist) must prepare a plan to investigate, identify, and control the source of the excursion. A separate plan must be developed for each excursion. The plan must include a description of the area of the release, objectives, procedures to be followed, safety measures, and personnel to carry out the plan.

15.5.2 Excursion of STEL

When monitoring indicates excursion of airborne chemical agent in excess of the STEL, the following actions will be completed:

- Reporting of a chemical event must occur for the following circumstances:
  - Chemical agent exceeding the STEL is confirmed outside of the engineering controls designed to protect workers or the environment (VCS).
  - Unprotected personnel have been exposed to a known release of chemical agent exceeding the STEL for 15 minutes or more.
- Decontamination of personnel exposed to an environment with liquid or aerosol chemical agent or where chemical agent exceeded the STEL. Such personnel will require decontamination to below the STEL prior to release from the CRZ.
- Monitoring and, if necessary, decontamination of PPE exposed to an environment where chemical agent exceeded the STEL. Once monitoring shows PPE is below the WPL, the PPE can be reused. PPE exposed to liquid or aerosol chemical agent cannot be reused and must be disposed of.
- Medical examinations must be performed of exposed and potentially exposed workers defined as:
  - Exposed workers exhibit clinical signs or symptoms consistent with vesicant exposure
  - Potentially exposed workers are defined as individuals who were present within an exclusion zone where
    - Mustard agent levels exceed the protective capability of the PPE, or
    - Mustard agent levels exceed the STEL in the presence of unprotected workers or there is a breach in the PPE of a worker.

15.6 MONITORING PROCEDURES

15.6.1 WPL Monitoring using VCS

ECBC will conduct area monitoring to the WPL within the vapor containment structure (VCS). Monitoring is required only once excavation has broken the ground with the VCS set up at its present location. During pre- and post-operation activities, monitoring will be performed when unmasked workers are conducting activities within the VCS. Monitoring will not be required for moving and setting up the VCS prior to conducting excavation within the VCS. Once excavation has been conducted within the VCS, WPL monitoring must be conducted as long as workers are present, or until the VCS has been ventilated. Ventilation may be accomplished by opening the large door and allowing the VCS to aerate for at least 1-hour, or by operating the filtration system for the same time.

Administrative controls must be in place to record the length of stay for each unprotected worker within the VCS at times when monitoring must be conducted. The information will be recorded in the downrange operational log.

WPL monitoring must be conducted continuously during intrusive operation conducted within the VCS. Access to the worksite is restricted except for approved personnel entering and exiting through the personnel decontamination station (PDS).

15.6.2 STEL Monitoring using VCS

STEL monitoring is required while conducting intrusive operations within the VCS. Administrative controls must be in place to record the times, names, and length of stay for individuals working within the VCS. This information will be recorded in the downrange log.

First entry STEL monitoring must be conducted following extended periods of VCS standing unfiltered once excavation has been conducted within the VCS. This will be conducted in the unlikely event that a previously undetected release has occurred and concentrations of chemical agent have built up within the structure while the filters have been idle.

Monitoring will not be required when moving the VCS or setting up the VCS over an area that has not been excavated; an exception would be in the case of a known or suspected release.

15.6.3 WPL Monitoring for Open Air Operations

ECBC will conduct area monitoring to the WPL at open air worksites. Monitoring will be conducted as described in the Air Monitoring Plan. Open air monitoring for the WPL will typically involve placing a dedicated DAAMS pump at the excavation site. Additional monitoring support is typically provided by the MINICAMS; however, the MINICAMS cannot be relied upon to detect concentrations of mustard agent at the WPL.

15.6.4 STEL Monitoring Procedures for Open Air Operations

ECBC will also conduct monitoring to the STEL at open air worksites. Monitoring will be conducted as described in the Air Monitoring Plan. Open air monitoring for the STEL involves the use of the MINICAMS at the excavation site. Confirmation of MINICAMS detections is provided by a second DAAMS pump at the excavation site (separate from the DAAMS used to monitor for the WPL).

15.6.5 STEL Monitoring at Other Locations

Monitoring for the STEL is required to confirm the decontamination of personnel exposed or potentially exposed to chemical agent. Monitoring for the STEL is also used to determine whether soil samples or equipment has been contaminated. In these instances, the MINICAMS is typically used although the DAAMS can be used to monitor the headspace for samples and equipment.

15.7 TRAINING REQUIREMENTS

The following mustard agent specific training items will be included in worker hazard communication training:

- An explanation of the types of activities at the site that have a mustard agent exposure potential
- Methods used to recognize and evaluate work areas with a mustard agent exposure potential.
- An explanation of the potential acute and chronic health effects associated with mustard agent exposure and the purpose and description of the mustard agent medical surveillance program.
- Protective measures including administrative controls, engineering controls, PPE, and safe work practices.
- Emergency procedures including self-aid, buddy-aid, first aid, and decontamination.
- An explanation of mustard agent MSDS and applicable SOPs regarding the handling and disposal of materials contaminated with mustard agent.
- Emergency evacuation and notification procedures.

Site workers must have direct access to mustard agent MSDS and must be readily accessible during and emergency.

FINAL

PROCEDURE FOR CORRECTIVE AND PREVENTIVE ACTION

PROCEDURE FOR CORRECTIVE AND PREVENTIVE ACTION

16.1 PURPOSE

This Standard Operating Procedure (SOP) describes the method for conducting root cause analysis of severity level 1 nonconformities identified by NCR and customer complaints, and evaluating the need for action to ensure that the nonconformities do not recur.

The procedure establishes the methodology to conduct trend analysis of nonconformities identified through NCRs for severity level 2, 3 and 4, corrective actions, quality surveillance reports and internal audit results, to identify the repetitive nonconformities and determine preventive action to eliminate the cause of potential repetitive nonconformities.

16.2 RESPONSIBILITIES

16.2.1 Project Manager (PM)

The PM will establish an operations project team to investigate the root cause of a severity level 1 nonconformance and recommend action to prevent the recurrence.

The PM is responsible to review the results of the root cause analysis and trend analysis, assign corrective and preventive actions and monitor process performance as a part of the PM's management review.

16.2.2 Programmatic Quality Control Manager (PQCM)

The QCM will provide support to the PM's team to effectively implement this SOP. Additionally, all root cause analysis, trend analysis and preventive action reports will be reviewed and recommendations provided if applicable.

16.2.3 Field Team Leader (FTL)

The FTL, as applicable, will periodically conduct trend analysis of nonconformities from the sources described herein, and report the results to the PM and PQCM.

16.3 PROCEDURES

16.3.1 Root Cause Analysis

The operations project team appointed by the PM shall determine root cause of a severity level 1 nonconformance. The root cause determination will depend upon project specific factors impacting the product development, product conformity or process performance. The nonconformity may be classified using an event and causal factors (Attachment 1) following the root cause analysis. The root cause analysis shall identify corrective actions to prevent recurrence. The record of the root cause analysis and corrective action taken shall be maintained on file with the PQCM as a part of the project record.

16.3.2 Trend Analysis

The operations project team review results from the following sources and perform a trend analysis, when sufficient information and data is available to ensure that the analysis is meaningful. Typically, a trend analysis should be conducted once at least every 6 months for projects of 1 year or longer duration. For short duration projects, the trend analysis should be done at about the halfway point.

(1) Corrective Actions (severity level 1 NCRs, customer complaints).
(2) Internal and External (including customer) audit results, quality surveillance/audit reports.
(3) NCRs (severity level 2, 3 or 4).

16.3.3 Preventive Action

For the period under review, the project operations team shall determine the root cause(s) of potential repetitive nonconformities and evaluate the need for action to prevent their recurrence. The project team shall prepare a report identifying the nonconformities for each area of the project processes/procedures, a consolidated summary of root causes of the nonconformities, and a statement of trends that are developing or have developed, and submit the report to the PM. The PM shall provide appropriate actions to prevent recurrence of the adverse trends. The team and the PQCM shall verify implementation of the preventive actions and report the results to the PM. The record of trend analysis and preventive action taken shall be maintained on file by the PQCM as a part of the project record.

Attachment 1

Event and Causal Factor Codes

	EVENT		CASUAL FACTOR
CODE	DESCRIPTION	CODE	DESCRIPTION
A	Noncompliance with standards, policies, procedures, or other administrative controls	1	Incorrect or inadequate procedures
B	Human error/inattention to detail	2	Insufficient, inadequate, or lack of training
C	Failure to meet contractual requirements	3	Inadequate supervision/management skills or practices
D	Errors in design		
E	Improper receipt/storage of material	4	Inadequate staffing/resources
		5	Inadequate job skills
F	Errors in construction or installation	6	Inadequate commitment
G	Other	7	Inadequate communication
		8	Inadequate organization/program interfaces
		9	Inadequate organization structure
		10	Inadequate work planning/schedule
		11	Inadequate work conditions
		12	Other

ACRONYMS AND ABBREVIATIONS

LIST OF ACRONYMS AND ABBREVIATIONS (SOP)

ACGIH	American Conference of Governmental Industrial Hygienist
AEL	Airborne Exposure Limit
APR	Air-Purifying Respirator
CASHPAC	Chemical Agent Safety and Health Policy Action Committee
CDL	Commercial Drivers License
CFR	Code of Federal Regulations
CIH	Certified Industrial Hygienist
CNC	Condensation Nuclei Counter
COE	Corps of Engineers
CPR	Cardiopulmonary Resuscitation
CPU	Chemical Protective Undergarments
CRZ	Contamination Reduction Zone
CSM	Chemical Surety Materials
CWM	Chemical Warfare Materiel
DOT	Department Of Transportation
ECBC	Edgewood Chemical Biological Center
EZ	Exclusion Zone
GFCI	Ground Fault Circuit Interrupters
HAZWOPER	Hazardous Waste Operations and Emergency Response
HFA	Human Factors Applications, Inc.
HPS	High Performance Suit
IAA	Isoamyl Acetate

IDLH	Immediately Dangerous to Life and Health
MOC	Medical Oversight Contractor
MSDS	Material Safety Data Sheet
MSN	Medical Services Network
NEC	National Electrical Code
OE	Ordnance and Explosives
OSHA	Occupational Safety and Health Administration
PDS	Personnel Decontamination Station
PEL	Permissible Exposure Limit
PF	Protection Factor
PM	Project Manager
PPE	Personal Protective Equipment
PSHO	Project Safety and Health Officer
QLFT	Qualitative Fit Test
QNFT	Quantitative Fit Test
RCWM	Recovered Chemical Warfare Materiel
SCBA	Self Contained Breathing Apparatus
SSHO	Site Safety and Health Officer
SSHP	Site Safety and Health Plan
TAP	Toxic Agent Protective
TEU	Technical Escort Unit
TLV	Threshold Limit Value
TM	Technical Manual

TSI	Thermo-Systems Inc.
UL	Underwriters Laboratories Inc.
USACE	U. S. Army Corps of Engineers
UXO	Unexploded Ordnance

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US Army Corps
of Engineers®

SAFETY

BASIC SAFETY CONCEPTS AND CONSIDERATIONS FOR ORDNANCE AND EXPLOSIVES OPERATIONS

ENGINEER PAMPHLET

"Approved for public release; distribution is unlimited."

AVAILABILITY

Electronic copies of this and other U.S. Army Corps of Engineers publications are available on the Internet at http://www.usace.army.mil/inet/usace-docs/. This site is the only repository for all official USACE engineer regulations, circulars, manuals, and other documents originating from HQUSACE. Publications are provided in portable document format (PDF).

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CESO

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Safety
BASIC SAFETY CONCEPTS AND
CONSIDERATIONS FOR ORDNANCE
AND EXPLOSIVES OPERATIONS

1. Purpose. This pamphlet establishes U.S. Army Corps of Engineers (USACE) operating procedures for dealing with ordnance and explosives (OE) items at Formerly Used Defense Sites (FUDS), Base Realignment and Closure, and Installation Restoration projects. There are no absolutely safe procedures for dealing with OE items, merely procedures considered to be least dangerous; therefore, it is essential that a planned and systematic approach to dealing with such items be established.

2. Applicability. This pamphlet applies to all Headquarters, U.S. Army Corps of Engineers elements and all USACE Commands having responsibility for performing OE response activities.

3. Distribution Statement. Approved for public release; distribution is unlimited.

4. References.

a. 27 CFR 55, Commerce in Explosives.

b. 29 CFR 1926, Subpart P, Excavations.

c. DOD 6055.9-STD, DOD Ammunition and Explosives Safety Standards.

d. AR 385-64, U.S. Army Explosives Safety Program.

e. DA Pam 385-64, Ammunition and Explosives Safety Standards.

f. TM 60A-1-1-31, Explosive Ordnance Disposal Procedures: General Information on EOD Disposal Procedures.

g. TB 700-2, Department of Defense Ammunition and Explosives Hazard Classification Procedures.

h. ER 5-1-11, Program and Project Management.

i. ER 1110-1-12, Quality Management.

j. EP 1110-1-17, Establishing a Temporary Open Burn and Open Detonation Site for Conventional Ordnance and Explosives Projects.

k. EP 1110-1-18, Ordnance and Explosives Response.

l. EM 385-1-1, Safety and Health Requirements Manual.

m. HNC-ED-CS-S-98-1, Methods for Predicting Primary Fragmentation Characteristics of Cased Explosives, January 1998. This document is available on the Internet at http://www.hnd.usace.army.mil/.

n. HNC-ED-CS-S-98-2, Method for Calculating Ranges to No More Than One Hazardous Fragment per 600 Square Feet, January 1998. This document is available on the Internet at http://www.hnd.usace.army.mil/.

o. Procedures for Demolition of Multiple Rounds (Consolidated Shots) on Ordnance and Explosives (OE) Sites, U.S. Army Engineering and Support Center, Huntsville, August 1998. This document is available on the Internet at http://www.hnd.usace.army.mil/.

p. AFM 91-201, Explosives Safety Standards.

q. NAVSEA OP5, Ammunition and Explosives Ashore Safety Regulations for Handling, Storing, Production, Renovation, and Shipping.

r. NFPA 780, Standard for the Installation of Lightning Protection Systems.

5. Explanation of Abbreviations and Terms. Abbreviations/acronyms and special terms used in this document are explained in the glossary.

6. Policy. The policy of USACE is to produce products and services that fully meet customers' expectations of quality, timeliness, and cost effectiveness, within the bounds of legal responsibility. An acceptable level of quality does not imply perfection; however, there should be no compromise of functional, health, or safety requirements. Adherence to the principles outlined in ER 5-1-11 and ER 1110-1-12 will contribute to achieving this goal. OE response procedures must be formulated to ensure harmony with the USACE Strategic Vision and should be executed in concert with activities presented in other USACE guidance.

7. Responsibilities. USACE and contractor personnel involved with OE response projects are responsible for safely executing response actions in accordance with (IAW) the approved Site Safety and Health Plan, approved Work Plan, and all applicable laws, regulations, and policies.

8. General Safety Concerns and Procedures.

a. As a general rule, all fuzed unexploded ordnance (UXO) will be detonated in the original position found. This is the safest method to effect final disposition of munitions.

b. OE operations will not be conducted until all applicable plans for the site in question are prepared and approved. These plans will be based upon the concept of limiting exposure to the minimum number of personnel, for the minimum amount of time, to the minimum amount of OE consistent with safe and efficient operations.

c. Only UXO-qualified personnel will perform OE procedures. As an exception, a UXO Technician I may assist in the performance of OE procedures when under the supervision of a UXO Technician III or a UXO-qualified individual of higher rank than UXO Technician III. Non-UXO-qualified personnel who have been determined to be essential for the operations being performed may be utilized to perform OE-related procedures when supervised by a UXO Technician III or a UXO-qualified individual of higher rank than UXO Technician III. All personnel engaged in field operations will be thoroughly trained and capable of recognizing the specific hazards of the procedures being performed. To ensure that these procedures are performed to standards, all field personnel will be under the direct supervision of a UXO Technician III or a UXO-qualified individual of higher rank than UXO Technician III.

d. Personnel who will be handling OE items will not wear outer or inner garments having static-electricity-generating characteristics. Materials made of 100-percent polyester, nylon, silk, and wool are highly static producing. Refer to DA Pam 385-64 for more information regarding nonstatic-producing clothing.

e. Prior to any action being performed on an ordnance item, all fuzing will be definitively identified. This identification will consist of fuze type by function and condition (armed or unarmed) and the physical state/condition of the fuze, i.e., burned, broken, parts exposed/ sheared, etc.

f. OE operations will be conducted only during daylight hours.

9. OE Safety Precautions.

a. Every effort will be made to identify a suspect OE item. Under no circumstances will any fuzed UXO be moved in an attempt to make a definitive identification. The OE item will be visually examined for markings and other external features such as shape, size, and external

fittings. If an unknown OE item is encountered, the onsite USACE representative will be notified immediately. If there is no onsite USACE representative, the USACE district or the U.S. Army Engineering and Support Center, Huntsville (USAESCH) OE Safety Group will be notified as soon as possible. If research of documentation is required, it will be initiated by USAESCH. Following is additional guidance for the safe handling of OE items:

(1) Projectiles containing base-detonating fuzes are to be considered armed if the round is fired.

(2) Arming wires and popout pins on unarmed fuzes should be secured prior to moving OE items.

(3) Do not depress plungers, turn vanes, or rotate spindles, levers, setting rings, or other external fittings on OE items. Such actions may arm or activate the items.

(4) Do not attempt to remove any fuze(s) from OE items. Do not dismantle or strip components from any OE items.

(5) UXO personnel are not authorized to render inert any OE items found onsite.

(6) OE items will not be taken from the site as souvenirs/training aids.

(7) Civil War ordnance will be treated in the same manner as any other OE items.

b. Prior to entering areas/ranges contaminated with Improved Conventional Munitions (ICMs) or submunitions, a Department of the Army (DA) waiver must be obtained by the affected installation or for FUDS properties, the executing Corps district. If an ICM or submunition is found at a site not previously known to contain ICMs or submunitions, work will cease. The discovered item will be identified, then properly disposed of (including guarding the item if disposition is to be delayed). Work will resume only when an ICM waiver has been obtained. For guidance on the preparation of waiver requests, contact the OE Mandatory Center of Expertise.

c. Any time suspect chemical warfare materiel is encountered during conventional OE site activities, all work will immediately cease. Project personnel will withdraw along cleared paths upwind from the discovery. A team consisting of a minimum of two personnel will secure the area to prevent unauthorized access. Personnel should position themselves as far upwind as possible while still maintaining security of the area.

(1) On FUDS properties, the UXO team will notify the local point of contact (POC) designated in the Work Plan. The local POC will facilitate explosive ordnance disposal (EOD) response, and two personnel will secure the site until the EOD unit's arrival. If the local POC

designated in the Work Plan is not the local law enforcement agency, the local POC will inform the local law enforcement agency of the discovery if necessary. The EOD unit will notify the Technical Escort Unit (TEU) and secure the area until TEU's arrival. After notifying the local law enforcement agency (when necessary), the local POC will notify the USAESCH OE Safety Group of the actions taken.

(2) On active installations, the UXO team will normally notify the Range Control Officer, the Facility Engineer, post headquarters, or the POC designated in the Work Plan.

d. Avoid inhalation of and skin contact with smoke, fumes, and vapors of explosives and related hazardous materials.

e. Consider OE items which may have been exposed to fire and detonation as extremely hazardous. Chemical and physical changes may have occurred to an item's contents, which may have rendered the item more sensitive than in its original state.

f. Do not rely on the color coding of OE items for definitive identification. Munitions having incomplete or improper color codes have been encountered.

g. Avoid approaching the forward area of an OE item until it can be determined whether or not the item contains a shaped charge. The explosive jet, which is formed during detonation, can be lethal at great distances. Assume that all shaped-charge munitions contain a piezoelectric (PZ) fuzing system until investigation proves otherwise. PZ fuzing is extremely sensitive. It can function at the slightest physical change and can remain hazardous for an indefinite period of time.

h. Approach an unfired rocket motor from the rear at a 45-degree angle. Accidental ignition can cause a missile hazard and hot exhaust.

i. Do not expose unfired rocket motors to any electromagnetic radiation (EMR) sources. See DA Pam 385-64 for safe separation distances from various sources of EMR.

j. Consider an emplaced landmine to be armed until proven otherwise. It may be intentionally boobytrapped to deceive.

(1) Many training mines contain spotting charges capable of inflicting serious injury.

(2) Exercise extreme care with wooden mines that have been buried for long periods of time. Certain soil conditions can cause the wood to deteriorate, and any inadvertent movement or pressure can initiate the fuze.

k. Assume that a practice OE item contains a live charge until investigation proves otherwise. Expended pyrotechnic and practice devices can contain red or white phosphorus (WP) residue. Due to incomplete combustion, this residue may re-ignite spontaneously if the crust is broken and exposed to air.

l. Do not approach a smoking WP munition. Burning WP may detonate the explosive burster charge at any time.

m. Foreign ordnance was shipped to the United States for exploitation and subsequent disposal. Every effort will be made to research all applicable documentation prior to commencement of a project involving foreign ordnance.

10. OE Storage. During OE projects, explosives storage falls into two categories, on Department of Defense (DOD) installations and off DOD installations.

a. On DOD installations, DOD 6055.9-STD and Service requirements (Army – AR 385-64; Navy – NAVSEA OP5; Air Force – AFM 91-201) will be met. For the remainder of this pamphlet, reference to DOD standards (i.e., DOD 6055.9-STD) also implies that Service explosives safety publications will be adhered to. Generally, the installation will have an existing explosives storage facility that meets DOD standards. If not, the contractor will establish a temporary storage facility. The compatibility of explosives defined in chapter 3, DOD 6055.9-STD, will be followed. Recovered OE items awaiting final disposition will not be stored with serviceable explosives. Commercial explosives will be assigned a DOD hazard classification (i.e., 1.1, 1.2, etc.) and storage compatibility grouping by the U.S. Army Technical Center for Explosives Safety prior to being stored on a military installation.

b. Off DOD installations, the contractor will be responsible for establishing a temporary explosives storage facility. This temporary storage facility will meet local, state, 27 CFR 55, AR 385-64, and DOD 6055.9-STD requirements to the greatest extent practicable.

(1) In cases where the facility cannot meet the intermagazine, inhabited building, and public traffic route quantity-distance requirements specified in DA Pam 385-64 and DOD 6055.9-STD, a barricading plan or other engineering controls to protect the public from accidental detonation must be submitted to and approved by the USAESCH Directorate of Engineering.

(2) Magazines must meet the requirements of 27 CFR 55, and each magazine must have a Net Explosive Weight and hazard classification established for the explosives to be stored.

(3) Each magazine must be provided lightning protection IAW DA Pam 385-64. The provisions of NFPA 780, which are consistent with Army guidance, may be used to supplement Army guidance where necessary.

(4) A physical security survey will be conducted to determine if fencing or guards are required. This survey will be coordinated through local law enforcement agencies. Generally, a fence around the magazine is not needed, IAW 27 CFR 55. However, the contractor is responsible for providing the degree of protection needed to prevent the theft of OE items.

c. A fire plan for either an on- or off-installation explosives storage facility will be prepared and coordinated with the local fire department. Placarding of magazines will be IAW local rules and regulations.

11. OE Transportation, Offsite. In the event that OE items must be transported offsite, the provisions of chapter 15, EP 1110-1-18, will be followed. In addition, USACE contractors are prohibited from transporting UXO offsite for destruction until the provisions of paragraph 1-9, TB 700-2, have been met.

12. OE Transportation, Onsite. The following safety procedures will be followed for the transportation of OE items onsite:

a. Do not transport WP munitions unless they are immersed in water, mud, or wet sand.

b. If loose pyrotechnic, tracer, flare, or similar mixtures are to be transported, they will be placed in No. 10 mineral oil or equivalent to minimize the fire and explosion hazards.

c. Incendiary-loaded munitions should be placed on a bed of sand and covered with sand to help control the burn if a fire should start.

d. If an unfired rocket motor must be transported, it will be positioned in the vehicle parallel to the rear axle. This will afford maximum protection for the personnel operating the vehicle.

e. If a base-ejection projectile must be transported to a disposal facility, the base will be oriented in the vehicle such that it is parallel to the rear axle. This will afford maximum protection for the personnel operating the vehicle.

f. OE items with exposed hazardous fillers, such as High Explosive, will be placed in appropriate containers with packing material to prevent migration of the hazardous fillers. Padding should be added to protect the exposed filler from heat, shock, and friction.

13. Exclusion Zone Operations. On OE project sites, it is the responsibility of the contractor's Unexploded Ordnance Safety Officer (UXOSO) to establish the exclusion zone for each UXO work area.

a. The purpose of the exclusion zone is to protect nonessential personnel from blast overpressure and fragmentation hazards. Calculating exclusion zones with respect to intentional and unintentional detonations is discussed below.

(1) Intentional Detonations. The minimum separation distances specified in DOD 6055.9-STD, chapter 5, paragraph C5.5.4, will be used unless lesser distances have been calculated using HNC-ED-CS-S-98-1.

(2) Unintentional Detonations. If the identity of OE items on a site is unknown, the minimum separation distance specified in DOD 6055.9-STD, chapter 5, paragraph C5.5.4, will be used to establish the exclusion zones. When the identity of OE items is known, the USAESCH Directorate of Engineering will use HNC-ED-CS-S-98-1 and HNC-ED-CS-S-98-2 to determine the criteria for establishing the exclusion zones.

b. When multiple teams are working onsite, a team separation distance (TSD) will be established. The minimum TSD will be the greater of 200 feet or the K50 (0.9 pounds per square inch) overpressure distance.

c. While OE procedures are being conducted, only personnel essential for the operation will be allowed in the exclusion zone. When nonessential personnel enter the exclusion zone, all OE operations will cease. In addition to this work stoppage, the following actions will be taken:

(1) The individual(s) must receive a safety briefing and sign the visitors log prior to entering the zone.

(2) The individual(s) will be escorted by a UXO-qualified individual.

d. All personnel working within the exclusion zone will comply with the following:

(1) There will be no smoking within the exclusion zone, except in areas designated by the UXOSO.

(2) There will be no open fires for heating or cooking (gas stoves, grills, etc.) within the exclusion zone, except where authorized by the UXOSO.

(3) During geophysical detection operations, personnel will not wear any metal that would interfere with instrument operations.

14. OE Excavation Operations.

a. Hand excavation is the most reliable method for uncovering an OE item. However, hand excavation exposes personnel to the hazard of detonation . Therefore, only UXO-qualified personnel will be used to perform this task.

b. Earth-moving machinery (EMM) may be used to excavate overburden from suspected OE items. EMM will not be used to excavate within 12 inches of a suspected OE item. Once the EMM is within 12 inches of the suspected OE item, the excavation will be completed by hand excavation methods. Personnel who are not UXO qualified may operate EMM only when supervised by a UXO Technician III or a UXO-qualified individual of higher rank than UXO Technician III.

(1) If more than one earth-moving machine is to be used onsite, the same minimum separation distances required for multiple work teams apply.

(2) EMM operations will be conducted within the guidelines of EM 385-1-1 and 29 CFR 1926, subpart P.

c. Excavation operations, whether by hand or EMM, will employ a stepdown or offset access method. Under no circumstances will any excavation be made directly over suspected OE items.

15. OE Disposal Operations. All disposal operations will be conducted IAW TM 60A-1-1-31, EP 1110-1-17, and the unnumbered USAESCH publication entitled Procedures for Demolition of Multiple Rounds (Consolidated Shots) on Ordnance and Explosives (OE) Sites.

a. As a general rule, all disposal operations will be accomplished by electrical means to ensure maximum safety. There are exceptions to this requirement in situations where static electricity or EMR hazards are present. Unintentional detonations can occur because of these induced currents (or lightning). The following precautions from DA Pam 385-64 are to be followed:

(1) Premature detonation of electric blasting caps by induced current from radio frequency signals is possible. Refer to DA Pam 385-64 for minimum safe distance with respect to transmitter power and indication of distance beyond which it is safe to conduct electric blasting even under the most adverse conditions.

(2) Lightning is a hazard with respect to both electric and nonelectric blasting caps. A direct hit or a nearby miss is almost certain to initiate either type of cap or other sensitive explosive elements such as caps in delay detonators. Lightning strikes, even at distant locations, may cause extremely high local earth currents that may initiate electrical firing circuits. Effects

of remote lightning strikes are multiplied by their proximity to conducting elements such as those found in buildings, fences, railroads, bridges, streams, and underground cables or conduits. The only safe procedure is to suspend all blasting activities when an electrical storm approaches to within 10 miles of the site.

(3) Electric power lines also pose a hazard with respect to electric initiating systems. It is recommended that any disposal operation closer than 155 meters to electric power lines be done with a nonelectric system.

b. The only acceptable disposal method is the one stated in the appropriate TM 60 Series manual for specific ordnance types. Any commercial explosives being used will be equivalent to the military explosive required for the disposal operation.

c. If justified by the situation, protective measures to reduce shock, blast over-pressure, and fragmentation will be taken. The USAESCH Directorate of Engineering will assist in any design work and will review for approval all proposed protective measures.

d. Minimum separations distances for personnel during OE disposal will be IAW DOD 6055.9-STD, chapter 5.

e. During open detonation operations, lifting lugs, strong backs, base plates, etc., will be oriented away from personnel locations.

f. Once disposal operations are completed, a thorough search of the immediate area will be conducted with a magnetometer to ensure that a complete disposal was accomplished.

g. Inert ordnance will not be disposed of as scrap until the internal tillers/voids have been exposed and unconfined.

FOR THE COMMANDER:

ROBERT L. DAVIS
Colonel, Corps of Engineers
Chief of Staff

GLOSSARY

Section I
Abbreviations

AFM ..... Air Force Manual

AR ..... Army Regulation

CFR ..... Code of Federal Regulations

DA ..... Department of the Army

DA Pam ..... Department of the Army Pamphlet

DOD ..... Department of Defense

EMM ..... Earth-Moving Machinery

EMR ..... Electromagnetic Radiation

EOD ..... Explosive Ordnance Disposal

FUDS ..... Formerly Used Defense Sites

IAW ..... In Accordance With

ICM ..... Improved Conventional Munition

NAVSEA OP ..... Naval Sea Systems Command Ordnance Pamphlet

NFPA ..... National Fire Protection Association

OE ..... Ordnance and Explosives

POC ..... Point of Contact

PZ ..... Piezoelectric

STD ..... Standard

TB ..... Technical Bulletin

TEU ..... Technical Escort Unit

TSD ..... Team Separation Distance

USACE ..... U.S. Army Corps of Engineers

USAESCH ..... U.S. Army Engineering and Support Center, Huntsville

UXO ..... Unexploded Ordnance

UXOSO ..... Unexploded Ordnance Safety Officer

WP ..... White Phosphorus

Section II
Terms

OE Procedures
Procedures which include, but are not limited to, the following actions performed by a UXO-qualified individual:

a. Gaining access to (manual excavation) and identifying subsurface anomalies and assessing the condition of buried OE.

b. Identifying and assessing the condition of surface OE.

c. Recovering and making final disposal of all OE.

OE-Related Procedures
Procedures which include, but are not limited to, the following actions which may be performed by a non-UXO-qualified individual:

a. Locating and marking subsurface anomalies.

b. Locating and marking suspected surface OE.

c. Transporting and storing recovered OE.

d. Utilizing EMM to excavate overburden from suspected OE.

Ordnance and Explosives (OE)
Consists of (1) military munitions that have been abandoned, expelled from demolition pits or burning pads, lost, discarded, or buried, (2) UXO, (3) soil presenting explosion hazards, and (4) buildings with explosives residues that present explosion hazards.

Unexploded Ordnance (UXO)
Military munitions that have been primed, fuzed, armed, or otherwise prepared for action and have been fired, dropped, launched, projected, or placed in such a manner as to constitute a hazard to operations, installations, personnel, or material and remain unexploded either by malfunction, design, or any other cause.

UXO-Qualified Personnel
Personnel meeting the requirements for the positions of UXO Technician II, UXO Technician III, UXO Safety Officer, UXO Quality Control Specialist, and Senior UXO Supervisor. For qualification requirements, refer to EP 1110-1-18.

DACS-SF

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Generic Approval of Commercial Chemical Protective Equipment

1. Reference:

a. DACS-SF memorandum dated 11 Apr 94, subject: Use of Commercially Available Chemical Protective Clothing.

b. DACS-SF memorandum dated 30 Dec 98, subject: Revised Policy for the Use of NIOSH-Certified Commercial Respirators with Chemical Agents.

c. DACS-SF memorandum dated 28 Feb 02, subject as above.

2. This memorandum supercedes reference "c." Reference "c" presented a list of clothing and respirators approved by the U.S. Army Materiel Command Chemical Agent Safety and Health Policy Action Committee (CASHPAC), on behalf of the Director of Army Safety, for specific chemical agents and use scenarios and with specific limitations. The attached updates the list of generically approved commercial chemical protective equipment by

a. Approving the Dupont and Dupont-licensed suppliers model Tyvek "F" level B/C chemical protective clothing for protection against Lewisite (L).

b. Approving the GEOMET (via Kappler) model Geomet Responder CSM level A chemical protective clothing for protection against nitrogen mustard (HN).

3. Use of CASHPAC-approved chemical protective clothing/respirator approved for the specific agent and in the specific use scenario listed on the attached eliminates the need to use the CASHPAC approval process outlined in reference "a" and "b." Note that under the following situations the CASHPAC approval process outlined in reference "a" and "b" must be used:

a. An installation/activity wants to use a commercial EPA Level A or B/C ensemble/respirator that has not been approved and listed by the CASHPAC.

b. A different use scenario is desired.

c. An installation/activity desires to use the commercial EPA Level A or B/C ensemble/respirator with chemical agent for which it has not been tested.

d. An installation/activity desires to use a commercial EPA Level A or B/C ensemble/respirator beyond its approved limitations.

4. An installation/activity planning to use CASHPAC approved/listed commercial chemical protective equipment will furnish a copy of the equipment selection decision logic (listing potential agent exposures and use scenarios) to DACS-SF for future reference. The installation/activity shall also maintain a copy of their decision logic for review by any Department of Army Pre-Operational Inspection Team and include it in applicable chemical warfare materiel safety submissions.

5. Point of contact in this office is Jim Patton, 703/601-2413, DSN 329-; point of contact on the CASHPAC is Carol A. Eason, 410-436-2051 or DSN 584-.

Encl

JAMES A. GIBSON
Senior Safety Manager
Office of the Director of Army Safety

DISTRIBUTION:
Deputy Assistant Secretary of the Army (Environment, Safety and Occupational Health), 110 Army Pentagon, Washington, DC 20310-0110
Project Manager for Chemical Stockpile Disposal, ATTN: SFAE-CD-SQ, Aberdeen Proving Ground, MD 21010-5401
Project Manager for Non-Stockpile Chemical Materiel, ATTN: SFAE-CD-N, Aberdeen Proving Ground, MD 21010-5401
Chief, National Guard Bureau, Army Aviation and Safety Directorate, Arlington Hall Readiness Center, ATTN: NGB-AVN-S, 111 South George Mason Drive, Arlington, VA 22204-1382
Commander, U.S. Army Materiel Command, ATTN: AMCSF, 5001 Eisenhower Avenue, Alexandria, VA 22333-0001
Commander, U.S. Army Soldier, Biological and Chemical Defense Command, ATTN: AMSBC-RA, Aberdeen Proving Ground, MD 21010-5423
Commander, U.S. Army Soldier, Biological and Chemical Defense Command, ATTN: AMSBC-SO, Aberdeen Proving Ground, MD 21010-5423
continued

DISTRIBUTION, cont.

Director, Edgewood Chemical Biological Center, ATTN: AMSCB-ODR-S, Aberdeen Proving Ground, MD 21010-5423

Commander, U.S. Forces Command, ATTN: AFPI-SO, Fort McPherson, GA 30330-6000

Commander, U.S. Army Corps of Engineers, ATTN: CESO-ZA, WASH DC 20314-1000

Commander, U.S. Army Training and Doctrine Command, ATTN: ATBO-S, Fort Monroe, VA 23651-5000

Director, U.S. Army Nuclear and Chemical Agency, ATTN: ATNA-CM, 7150 Heller Loop, Suite 101, Springfield, VA 22150-3198

Commander, U.S. Army Center for Health Promotion and Preventive Medicine, ATTN: MCHB-TS-OFS, Aberdeen Proving Ground, MD 21010-5422

Director, U.S. Army Technical Center for Explosives Safety, ATTN: SIOAC-ES, McAlester, OK 74501

Manufacturer: Dupont and Dupont-licensed suppliers

Model: Tyvek "F"

Level: B/C

Agent(s): G-series, VX, HD, L

Use Scenario(s):

1. Intrusive excavation using, heavy machinery, hand tools, by hand, sifting equipment, etc.
2. Environmental sample collection such as soil, sludge, water, etc.
3. Decontamination of agent contaminated media. For example, soil, debris, etc.
4. Operation of a PDS or EPDS.
5. Assessment, packaging, unpackaging and removal of excavated items.
6. Well drilling/installation.
7. General site work such as, equipment maintenance, cylinder change-out, other routine tasks as defined in the applicable safety submission.

Reuse: Not reusable if contaminated with vapor and/or liquid chemical agent. This is also a one-time use suit.

Limitations/Additional Requirements:

1. Must be removed immediately if contaminated with liquid chloroform/HD or GB and the wearer decontaminated within 30 minutes.
2. If workers encounter leaking CAIS they will immediately evacuate the area and don other approved chemical protective clothing.
3. CPU must be worn for HD operations.
4. May not be used if fire is expected (suit is not NFPA certified for flame resistance).
5. Have a heat stress plan developed, approved, and workers trained prior to use.
6. Suit must be thoroughly inspected before and during use for signs of wear.
7. Prior to use of suit, manufacturer shall provide validation of QA/QC batch testing of suit material swatches to ensure consistent materiel quality over time and between production lots.

Manufacturer: GEOMET (via Kappler)

Model: Geomet Responder CSM

Level: A

Agent(s): G-series, VX, HD, HN, L

Use Scenario(s):

1. Emergency response into an area in which an unplanned release of chemical agent has occurred.
2. Operation of a PDS/EPDS.
3. CAIRA operations such as, clean up of spills, air monitoring set up, first entry after engineering control failure, containment of open agent.
4. Demilitarization of CAIS (unpacking, segregating, storing, preparing, etc.).
5. Operations conducted in igloos or test chambers involving suspect chemical agent items.
6. Destruction/dismantling of contaminated buildings and equipment.
7. Isolation of leaking munitions.
8. Emergency back-up entries into IDLH areas.
9. Confined space entry into toxic/hazardous environments.
10. Routine first entry monitoring into outdoor or indoor agent storage areas/igloos.
11. Sampling and removal (manually or mechanically) of potentially contaminated soil and/or items from remediation sites.
12. Decontamination/treatment of soil samples.

Reuse: Not reusable if contaminated with vapor and/or liquid chemical agent. Otherwise, if not contaminated, this is a limited use suit.

Limitations/Additional Requirements:

1. May not be used if fire is expected (suit is not NFPA certified for flame resistance) unless the silver over-shield is worn.
2. Have a heat stress plan developed, approved and workers trained prior to use.
3. Prior to use of suit, manufacturer shall provide validation of QA/QC batch testing of suit material swatches to ensure consistent materiel quality over time and between production lots.
4. Pass-through (if worn tethered) must be compatible with airline system.

Manufacturer: Trelleborg Industri

Model: TRELLCHEM HPS

Level: A

Agent(s): G-series, HD, L, VX

Use Scenario(s):

1. Working within a vapor containment structure (VCS).
2. Decontamination of a VCS.
3. CAIRA operations such as, clean up of spills, air monitoring set up, first entry after engineering control failure, containment of open agent.
4. Routine first entry monitoring into outdoor or indoor agent storage areas/igloos.
5. Operations conducted in igloos or test chambers involving suspect chemical agent items.
6. Destruction/dismantling of contaminated buildings and equipment.
7. Isolation of leaking munitions.
8. Emergency back-up entries into IDLH areas.
9. Confined space entry into toxic/hazardous environments.
10. Operation of the PDTDF (decontamination of interior and work conducted in agent environment).
11. Operation of the MAPS facility (removal of drill/cut box from the explosion containment chamber (ECC); decontamination of the ECC; opening munition overpack in process room; decontamination of the process room).
12. Operation of the solvated electron technology (SET™) with in a chemical agent test chamber.
13. Sampling and removal (manually or mechanically) of potentially contaminated soil and/or items from remediation sites.
14. Decontamination/treatment of soil samples.

Reuse: Not reusable if contaminated with liquid agent; reusable if contaminated with vapor agent.

Limitations/Additional Requirements:

1. Have a heat stress plan developed, approved and workers trained prior to use.
2. Prior to use of suit, manufacturer shall provide validation of QA/QC batch testing of suit material swatches to ensure consistent materiel quality over time and between production lots.
3. Pass-through (if worn tethered) must be compatible with airline system.

Manufacturer: Trelleborg Industri

Model: TRELLECHEM TLU

Level: A

Agent(s): G-series, HD/L, VX

Use Scenario(s): CAIRA operations such as, clean up of spills, air monitoring set up, first entry after engineering control failure, containment of open agent.

Reuse: Not reusable if contaminated with vapor and/or liquid chemical agent. Otherwise, if not contaminated, this is a limited use suit.

Limitations/Additional Requirements:

1. May not be used if fire is expected (suit is not NFPA certified for flame resistance).
2. Have a heat stress plan developed, approved and workers trained prior to use.
3. Prior to use of suit, manufacturer shall provide validation of QA/QC batch testing of suit material swatches to ensure consistent materiel quality over time and between production lots.
4. Pass-through (if worn tethered) must be compatible with airline system.

Manufacturer: GEOMET

Model: Commercial STEPO

Level: A

Agent(s): G-series, HD/L, VX

Use Scenario(s): CAIRA operations such as, clean up of spills, air monitoring set up, first entry after engineering control failure, containment of open agent.

Reuse: Not reusable if contaminated with vapor and/or liquid chemical agent.

Limitations/Additional Requirements:

1. Have a heat stress plan developed, approved and workers trained prior to use.
2. Prior to use of suit, manufacturer shall provide validation of QA/QC batch testing of suit material swatches to ensure consistent materiel quality over time and between production lots.

Manufacturer: Trelleborg Industri

Model: TRELLCHEM HPS-TS

Level: B

Agent(s): G-series, HD/L, VX

Use Scenario(s):

Reuse: Not reusable if contaminated with liquid agent; reusable if contaminated with vapor agent.

Limitations/Additional Requirements:

1. Working within a vapor containment structure (VCS).
2. Decontamination of a VCS.
3. CAIRA operations such as, clean up of spills, air monitoring set up, first entry after engineering control failure, containment of open agent.
4. Routine first entry monitoring into outdoor or indoor agent storage areas/igloos.
5. Operations conducted in igloos or test chambers involving suspect chemical agent items.
6. Destruction/dismantling of contaminated buildings and equipment.
7. Isolation of leaking munitions.
8. Emergency back-up entries into IDLH areas.
9. Confined space entry into toxic/hazardous environments.
10. Operation of the PDTDF (decontamination of interior and work conducted in agent environment).
11. Operation of the MAPS facility (removal of drill/cut box from the explosion containment chamber (ECC); decontamination of the ECC; opening munition overpack in process room; decontamination of the process room).
12. Operation of the solvated electron technology (SET™) with in a chemical agent test chamber.
13. Sampling and removal of potentially contaminated soil and/or items from remediation sites.
14. Prior to use of suit, manufacturer shall provide validation of QA/QC batch testing of suit material swatches to ensure consistent materiel quality over time and between production lots.

Manufacturer: Kappler®

Model: Kappler® Coverall Style 41250 FV

Level: N/A

Agent(s): GB, HD, L, VX

Use Scenario(s):

1. Routine disposal of the industrial and warfare chemicals found in CAIS sets.

Reuse: Not reusable if contaminated with liquid or vapor agent.

Limitations/Additional Requirements:

1. The Kappler® Coverall is approved for use as a replacement for the Army Level B apron.
2. Prior to use of suit, manufacturer shall provide validation of QA/QC batch testing of suit material swatches to ensure consistent materiel quality over time and between production lots.
3. Must have a complete inspection program in place and employed to ensure that damaged coveralls are not reused.

Manufacturer: North

Model: North 7600-8A NIOSH-Certified Full Facepiece Air-Purifying Respirator with North 7583/P100 Organic Vapors/Acid Gases Cartridge/Filter

Level: N/A

Agent(s): Specific chemical agents listed in AR 50-6.

Use Scenario(s):

1. Added protection in chemical agent laboratory operations when chemical agent is inside a certified chemical agent laboratory ventilation hood.
2. Emergency-escape from a chemical agent laboratory.

Reuse: Respirators and cartridges that have been exposed to chemical agents will be decontaminated, monitored, and disposed of.

Limitations/Additional Requirements:

1. Near Real Time (NRT) monitoring must be conducted to ensure agent levels do not exceed the Maximum Use Concentration (MUC) for the specific agent involved. The MUC is the assigned protection factor of the respirator (50) multiplied times the Airborne Exposure Limit (AEL) for the agent. The MUC for mustard and Lewisite will not exceed 0.003 mg/m3.
2. The user's Respiratory Protection Program will meet the requirements of 29 CFR 1910.134, to include establishing filter/canister change-out schedules.
3. Additional personal protective clothing and equipment will be adequate for the work being performed.

Manufacturer: North

Model: North 7600 Series NIOSH-Certified Full Facepiece Air-Purifying Respirator with North 7583/P100 Organic Vapors/Acid Gases Cartridge/Filter

Level: N/A

Agent(s): Specific chemical agents listed in AR 50-6.

Use Scenario(s):

1. Environmental sampling.
2. Excavation into anomalies.
3. Operations where personnel are responsible for decontaminating personnel and equipment.
4. Emergency escape for personnel working outside the exclusion zone but within the No Significant Effects zone, in the event the near real time (NRT) monitoring devices alarm.
5. Emergency escape from chemical area.
6. Maintenance operations.
7. Industrial chemical operations in support of MMD-1 operations.
8. Processing of munitions/container carcasses already processed in the MMD-1 Process Trailer.
9. Agent treatment process liquid and/or vapor sampling filter unit, and gas reactor carbon replacement in support of MMD-1 operations.

Reuse: Respirators and cartridges that have been exposed to chemical agents will be decontaminated, monitored, and disposed of.

Limitations/Additional Requirements:

1. Near Real Time (NRT) monitoring must be conducted to ensure agent levels do not exceed the Maximum Use Concentration (MUC) for the specific agent involved. The MUC is the assigned protection factor of the respirator (50) multiplied times the Airborne Exposure Limit (AEL) for the agent. The MUC for mustard and Lewisite will not exceed 0.003 mg/m3.
2. The user's Respiratory Protection Program will meet the requirements of 29 CFR 1910.134, to include establishing filter/canister change-out schedules.
3. Additional personal protective clothing and equipment will be adequate for the work being performed.

Manufacturer: MSA

Model: MSA Ultra-Twin NIOSH-Certified Full Facepiece Air-Purifying Respirator with MSA GME Super Cartridges/P100 Filters

Level: N/A

Agent(s): Specific chemical agents listed in AR 50-6.

Use Scenario(s):
1. Environmental sampling.
2. Excavation into anomalies.
3. Operations where personnel are responsible for decontaminating personnel and equipment.
4. Emergency escape for personnel working outside the exclusion zone but within the No Significant Effects zone, in the event the near real time (NRT) monitoring devices alarm.
5. Emergency escape from chemical area.
6. Maintenance operations.

Reuse: Respirators and cartridges that have been exposed to chemical agents will be decontaminated, monitored, and disposed of.

Limitations/Additional Requirements:
1. NRT monitoring must be conducted to ensure agent levels do not exceed the Maximum Use Concentration (MUC) for the specific agent involved. The MUC is the assigned protection factor of the respirator (50) multiplied times the Airborne Exposure Limit (AEL) for the agent. The MUC for mustard and Lewisite will not exceed 0.003 mg/m3.
2. The user's Respiratory Protection Program will meet the requirements of 29 CFR 1910.134, to include establishing filter/canister change-out schedules.
3. Additional personal protective clothing and equipment will be adequate for the work being performed.

Manufacturer: MSA

Model: MSA Advantage 1000 NIOSH-Certified Full Facepiece Air-Purifying Respirator with MSA GME Super Cartridges/P100 Filters

Level: N/A

Agent(s): Specific chemical agents listed in AR 50-6.

Use Scenario(s):

1. Industrial chemical operations where there is a potential for chemical agent exposure.
2. Operation of Rapid Response System (RRS).
3. Operation of the Emergency Personnel Decontamination Station (EPDS).
4. Maintenance and housekeeping operations.
5. Emergency escape from chemical area.
6. Industrial chemical operations in support of MMD-1 operations.
7. Processing of munitions/container carcasses already processed in the MMD-1 Process Trailer.
8. Agent treatment process liquid and/or vapor sampling filter unit, and gas reactor carbon replacement in support of MMD-1 operations.

Reuse: Respirators and cartridges that have been exposed to chemical agents will be decontaminated, monitored, and disposed of.

Limitations/Additional Requirements:

1. NRT monitoring must be conducted to ensure agent levels do not exceed the Maximum Use Concentration (MUC) for the specific agent involved. The MUC is the assigned protection factor of the respirator (50) multiplied times the Airborne Exposure Limit (AEL) for the agent. The MUC for mustard and Lewisite will not exceed 0.003 mg/m3.
2. The user's Respiratory Protection Program will meet the requirements of 29 CFR 1910.134, to include establishing filter/canister change-out schedules.
3. Additional personal protective clothing and equipment will be adequate for the work being performed.

Army Regulation 50–6

Nuclear and Chemical Weapons and Materiel

Chemical Surety

Headquarters
Department of the Army
Washington, DC
26 June 2001

UNCLASSIFIED

SUMMARY of CHANGE

AR 50–6
Chemical Surety

This revision--

- Reorders chapters to provide a more logical flow.

- Retains the Chemical Surety Program during mobilization (applicability paragraph).

- Designates the ODCSOPS (DAMO-SSD) as approval authority for waivers and exceptions to policy, and reclamas to chemical surety inspections (para 1-4a).

- Consolidates all chemical accident or incident response and assistance (CAIRA) responsibilities formerly located in chapter 9 into chapter 1.

- Requires MEDDACs supporting installations with a chemical mission to designate a Chemical Surety Medical Support Program Director (CSMSPD) who is required to be on-site at least 20 hours per week to perform surety program related administrative and medical duties (para 1-4z-aa).

- Adds supplemental guidance on requirements and responsibilities under the Chemical Weapons Convention (para 1-7c).

- Consolidates PRP related information, including guidance for contractor personnel (formerly chapter 9, Managing Chemical Agent Contracts) into chapter 2, Personnel Reliability Program, and reorders sections to more closely follow the sequence of events in certifying an individual into and out of the PRP.

- Deletes unescorted entry into a chemical agent exclusion area as the basis for a PRP position. Entry requires application of the two-person rule (para 2-4a(1)).

- Adds demilitarization equipment operators to the list of duties requiring entry into the PRP (para 2-4a(3)).

- Allows the certifying official to list job position title or assigned chemical duties on the chemical duty position roster (CDPR) (currently only chemical agent duties can be used) and amplifies guidance on this section of the CDPR (para 2-5d(5) and 2-5f).

- Clarifies that the certifying official’s signature on the CDPR constitutes a review of designated PRP positions and fulfills the annual PRP position review required by DODD 5210.52 (para 2-5g).

- Expands narrative on technical proficiency requirements for PRP positions and provides additional guidance for on-the-job-training (OJT) programs (para 2-6).

- Expands the narrative on PRP qualifying factors/requirements (para 2-8).

- Updates PRP disqualifying factors per guidance in DODD 5210.42 (para 2-9) and adds inappropriate use of other substances, e.g. sniffing glue or aerosol fumes, as potentially disqualifying information under drug abuse (para 2-9c(5)).

- Clarifies that drug abuse screening/urinalysis is not required to complete the administrative screening process prior to a PRP assignment (para 2-10f).

- Clarifies that individuals who submit a Periodic Reinvestigation (PR) prior to the expiration of their latest Personnel Security Investigation (PSI) will remain fully qualified for PRP purposes (para 2-13c(5).

- Includes nurse practitioners in the definition of a competent medical authority (CMA) (para 2-15a and glossary, section II, terms).

- Gives certifying officials the option to maintain the original copy of DA Form 3180 (Personnel Screening and Evaluation Record) at the installation or send it to the applicable personnel office (only option currently authorized) (para 2-17c).

- Adds figure 2-1, summarizing screening requirements and changing rules on rescreening previously screened personnel, per DODD 5210.42 (para 2-18).

- Provides additional guidance on responsibilities of individuals and supervisors regarding continuing evaluation (para 2-22).

- Requires all requests for PRP requalification for personnel no longer assigned to commands with a PRP to be forwarded through command channels to ODCSOPS (DAMO-SSD) (para 2-31b).

- Corrects an error that incorrectly stated the certifying official was responsible for a number of actions related to the contractor’s implementation of the PRP when in fact the actions were the responsibility of the contractor (para 2-33a(1)-(8)).

- Allows contractor PRP administrative officials to medically restrict a contractor employee from PRP duties as long as the employee does not object to medical authorities providing personal information to the official (para 2-33b(2) and (3)).

- Deletes interim certification of foreign nationals into PRP (formerly para 9-11).

- Adds DA Form 7422 (Annual Personnel Reliability Program (PRP) Status Report) (para 2-35c).

- Increases maximum quantity of research chemical agent that can be stored at Contractor-Owned, Contractor-Operated (COCO) laboratories from 1 to 4 liters (para 3-2e). (Note: DCSOPS approved a waiver to AR 50-6 on 21 May 97 authorizing this increase.)

- Adds a new chapter 4, Acquisition of Chemical Agents to ensure compliance with the Chemical Weapons Convention.

- Deletes the requirement that HQDA, ODCSOPS DAMO-SSD review and approve all Army Materiel Command (AMC) developed standard surety clauses used in COCO contracts prior to contract award (formerly para 8-3d in the 1 Feb 95 edition of AR 50-6).

- Extends the interval at which contracting officer’s representatives (CORs) performing certifying official duties will conduct surety compliance visits of contractor chemical agent operations from 9 to 24 months (para 3-6b).

- Requires commanders to have site-specific chemical agent accountability SOPs and to forward a semi-annual chemical agent accountability report to SBCCOM (para 5-2a and b).

- Requires commands to establish a PRP for quantities of experimental agent exceeding 1 liter, to comply with the two-person rule during operations with experimental chemical agents in excess of 1 ml. (para 6-2b and 6-3b), and authorizes MACOMs to approve a reduced scope PRP for activities that store less than 4 liters neat equivalent of research chemical agent (para 6-2b and c).

- States that PRP slots under special MACOM-developed PRP are considered testing designated positions requiring urinalysis per AR 600-85 (para 6-2b(2)).

- Adds table 6-3, Research Chemical Agent PRP Guidelines, to assist organizations in determining the scope of PRP required by type and quantity of chemical agent.

- Authorizes movement of chemical agents for use at approved chemical defensive training facilities (para 7-2c).

- Moves information on transporting research chemical agents (formerly para 9-3), to chapter 7, Transportation of Chemical Agents (para 7-3).

- Authorizes MACOMs to approve chemical agent movements up to 4 liters neat equivalent. Movements above 4 liters still require HQDA, ODCSOPS (DAMO-SSD) approval (para 7-3c).

- Requires all Technical Escort Unit (TEU) personnel in MOS 54B and 55D, officer AOC 74B and 91E, and all Army civilian toxic material handlers assigned to escort duties to attend the Technical Escort Course at Redstone Arsenal, AL (para 7-11a).

- Deletes paragraphs dealing with rail and water transportation of chemical agents, which are no longer viable shipping options.

- Deletes the policy section from chapter 10, CAIRA (formerly chapter 4), which provided procedural information already contained in DA PAM 50-6, CAIRA Operations.

- Establishes a separate chapter on chemical event reporting, chapter 11, which was formerly part of chapter 10, CAIRA Operations.

- Establishes three categories of chemical event reports-non-surety emergency, limited area/post only emergency, and community emergency-to better highlight the potential impact of a particular event and bring this regulation in line with DA PAM 50-6 (para 11-2).

- Reorganizes chapter 12, Recovered Chemical Warfare Material, to better reflect functional requirements for safety, security, and transportation.

- Considers recovered chemical agent identification sets (CAIS) as RCWM for purposes of this regulation (para 12-1a), deletes policy statements that all chemical agent material found buried and recovered on firing ranges be classified as hazardous waste, and requires compliance with environmental regulations and the EPA’s Military Munitions Rule with respect to classification of RCWM (para 12-4).

- Updates and adds definitions to include: active service, administrative termination, alcohol abuse, chemical event, competent medical authority, continuing evaluation, drug abuse, permanent disqualification, random testing, DOD personnel, research chemical agent, and temporary disqualification (glossary, section II, terms).

- Clarifies that experimental chemical agents are a Category III chemical agent (appen B-2c).

- Adds neutralant generated by chemical neutralization as a non-surety chemical material (appen B-3e).

- Revises appendix C, Chemical Surety Program Management Control Evaluation Checklist to allow management control evaluations to be accomplished during the routine process of DAI.

Headquarters
Department of the Army
Washington, DC
26 June 2001

*Army Regulation 50–6

Effective 26 July 2001

Nuclear and Chemical Weapons and Materiel

Chemical Surety

By Order of the Secretary of the Army:

ERIC K. SHINSEKI
General, United States Army
Chief of Staff

Official:

JOEL B. HUDSON
Administrative Assistant to the
Secretary of the Army

History. This publishes a revision. Because the entire text has been revised, no attempt has been made to highlight changes from the earlier regulation.

Summary. This regulation prescribes policies, procedures, and responsibilities for the Army Chemical Surety Program. Along with AR 190–59, it also implements DOD physical security requirements pertaining to surety matters (per DODD 5210.65) for chemical weapons (including binary weapons when uploaded with both components) and research chemical agents. It has been revised to update responsibilities, Personnel Reliability Program (PRP) procedures, transportation policies, chemical event notification, chemical accident or incident response and assistance (CAIRA) operations, and inspection requirements. It also amplifies safety, security, and PRP requirements pertaining to chemical agent operations, including contractors.

Applicability. This regulation applies to all Army commands, agencies, organizations, and to contractors that have chemical agent related responsibilities. This regulation does not apply to the Army National Guard of the United States (ARNGUS) or to the U.S. Army Reserve (USAR). It is applicable during full mobilization.

Proponent and exception authority. The proponent of this regulation is the Deputy Chief of Staff for Operations and Plans (DCSOPS). The DCSOPS has the authority to approve exceptions to this regulation that are consistent with controlling law and regulation. The DCSOPS may delegate this authority in writing to a division chief within the proponent agency.

Army management control process. This regulation contains management control provisions and identifies key management controls that must be evaluated.

Supplementation. Supplementation of this regulation and establishment of command and local forms are prohibited without prior approval of HQDA, ODCSOPS, ATTN: DAMO–SSD, 400 Army Pentagon, Washington, DC 20310–0400.

Suggested Improvements. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to HQDA, ODCSOPS, ATTN: DAMO–SSD, 400 Army Pentagon, WASHINGTON, DC 20310–0400.

Distribution. This publication is available in electronic media only and is intended for chemical surety operations located at command levels B, C, D, and E for the Active Army. There is no distribution requirement for the Army National Guard of the United States and the U.S. Army Reserve.

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*This document supersedes AR 50–6, Chemical Surety, dated 1 February 1995.

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Chapter 1
Introduction

1–1. Purpose

This regulation establishes Army policies, assigns responsibilities, and prescribes procedures for the Army Chemical Surety Program. The purpose of the Army Chemical Surety Program is to ensure that chemical agent operations are conducted in a safe, secure, and reliable manner.

1–2. References

Required and related publications and prescribed and referenced forms are listed in appendix A.

1–3. Explanation of abbreviations and terms

Abbreviations and special terms used in this regulation are explained in the glossary.

1–4. Responsibilities

a. The Deputy Chief of Staff for Operations and Plans (DCSOPS) has overall Army Staff (ARSTAF) responsibility for the Army Chemical Surety Program, including chemical accident or incident response and assistance (CAIRA).

(1) The Director, Strategy, Plans and Policy (DAMO–SS), as the Army focal point for surety will—

(a) Establish overall policy for the chemical surety program.

(b) Function as the Army Staff (ARSTAF) focal point for chemical surety matters.

(c) Integrate other ARSTAF program responsibilities into the overall chemical surety program.

(d) Resolve reclamas to chemical surety inspections conducted by The Inspector General (TIG).

(e) In coordination with the Department of State, designate storage locations for recovered chemical warfare material (RCWM) found outside the continental United States (OCONUS).

(f) Establish Army policy for CAIRA and implement the Army/Federal Emergency Management Agency (FEMA) Memorandum of Understanding for the Chemical Stockpile Emergency Preparedness Program (CSEPP).

(g) Provide backup notification to the National Response Center as required by section 9603, title 42, U.S. Code (42USC9603).

(h) Formally appoint the Service response force (SRF) commander/on–scene coordinator (OSC), when deployed.

(i) Receive and analyze chemical event reports.

(j) Establish procedures for coordinating the national level response to chemical accident/incidents (CAI), including other Federal agencies, such as FEMA.

(k) Activate the Army Operations Center (AOC) Crisis Action Team to provide Army level command and control, information, and support for CAIRA operations.

(2) The Director, Operations, Readiness, and Mobilization (DAMO–OD), will provide the overall policy guidance and establish minimum physical security standards, criteria, and procedures for protecting chemical agents.

b. The Deputy Chief of Staff for Personnel (DCSPER) will provide general staff supervision for personnel reliability and establish personnel policies to support implementation of the Army Chemical Surety Program. The DCSPER will monitor personnel standards and procedures to ensure effective and uniform implementation of the personnel reliability program (PRP).

c. The Deputy Chief of Staff for Logistics (DCSLOG) will—

(1) Establish policy for the logistical support for the Army Chemical Surety Program.

(2) Develop policy for chemical weapons surveillance and assessment programs.

(3) Develop policy and guidance for transporting chemical agents and related material, chemical weapons, and RCWM.

(4) Develop policy and guidance for explosive ordnance disposal (EOD) support to CAI operations.

d. The Deputy Chief of Staff for Intelligence (DCSINT) will ensure counterintelligence support to the Army Chemical Surety Program.

e. The Inspector General (TIG) will accomplish independent assessments of the Army Chemical Surety Program through compliance inspections and systemic assessments.

f. The Surgeon General (TSG) will—

(1) Establish medical policy in support of the Army Chemical Surety Program (including CAIRA).

(2) Maintain a postgraduate medical education program for physicians supporting chemical agent facilities and installations.

(3) Designate a medical consultant on surety for the Army.

g. The Assistant Chief of Staff for Installation Management will provide guidance on the application of environmental policy for storage and destruction of the chemical agent stockpile and operations involving RCWM.

h. The Chief of Public Affairs will provide public affairs support for the Chemical Surety Program.

i. The Judge Advocate General will provide advice on the applicability of laws to chemical agent operations.

j. The Commanding General, U.S. Total Army Personnel Command will monitor military personnel reassignments and other personnel actions to ensure that requisitions for PRP personnel are filled with qualified personnel.

k. The Commanding General, U.S. Army Materiel Command (AMC), will—

(1) Establish a surety program per this regulation.

(2) Identify user needs and establish an acquisition program for specialized personal protective clothing and equipment.

(3) Identify, establish, and maintain training programs to support the chemical agent surety program.

(4) Plan and conduct CAIRA exercises as outlined in paragraph 10–2.

(5) Provide technical advice and assistance on chemical agents and support equipment to other commands and agencies.

(6) Provide technical escort service for the transport of chemical agent material and RCWM.

(7) Advise the Commanding General, U.S. Army Forces Command (FORSCOM), of the status of chemical agent shipments to ensure CAIRA support.

(8) Establish a quality assurance/quality control program for environmental and safety monitoring. The program will include certification of laboratories, personnel, equipment, and reference standards in support of chemical agent research, development, and acquisition (RDA) storage and demilitarization operations.

(9) Approve, support, and oversee contractor–owned, contractor–operated (COCO) facilities used for research chemical agents.

(10) Act as lead command to develop and maintain standard chemical agent safety, surety, and security contract clauses, including laboratory operation technical procedures, for use in DOD RDA contracts and agreements involving research chemical agents at COCO facilities.

(11) Operate a national inventory control point (NICP) for chemical agent material.

(12) Establish, train, and maintain an initial response force (IRF) at AMC installations that store chemical agents. The IRF will be established as described in DA Pamphlet 50–6, chapter 2.

(13) Establish, train, and maintain a service response force (SRF) capable of responding to an Army CAI at a chemical agent storage site/demilitarization facility, during off–site transportation of chemical agents and during RCWM operations in CONUS. The SRF will be established as described in DA Pamphlet 50–6, chapter 2.

(14) Provide IRF and SRF commander, staff, and appropriate response forces for CAIs at the U.S. Army Medical Research and Materiel Command on–post facilities maintaining custody of research chemical agents.

(15) Plan, budget, and execute the on–post portion of the Chemical Stockpile Emergency Preparedness Program (CSEPP) per program and Army guidance.

(16) Designate approved storage facilities for RCWM discovered within CONUS. Coordinate with State officials as required.

(17) Coordinate emergency transportation and destruction plans with Federal and State regulatory agencies and provide regional and national agreements for transportation of RCWM classified as hazardous waste.

(18) Serve as the DOD accountability manager for Schedule 1 chemicals (see glossary).

(a) Ensure DOD components do not produce or retain more than permitted amounts, or export to non–States Parties to the Chemical Weapons Convention (CWC).

(b) Design and implement an internal DOD data reporting system to track the production, retention, consumption, transfer, and receipt of Schedule 1 chemicals.

(c) Coordinate, consolidate and report to DAMO–ODO, all DOD data required to report the next calendar year's anticipated Schedule 1 chemical production, transfer, and consumption.

(d) Coordinate, consolidate, and report to ODCSOPS (DAMO–ODO), all DOD data required to report the previous calendar year's Schedule 1 chemical production, transfer, and consumption.

(e) If necessary to seek an adjustment to DOD national allotments, provide to ODCSOPS (DAMO–SSD) by 1 May of each year, detailed and supported estimates for anticipated DOD Schedule 1 chemical requirements for the following calendar year.

(19) Operate the Single Small Scale Facility (SSSF), for production of Schedule 1 chemicals for research, medical, pharmaceutical, or protective purposes, per the applicable provisions of the CWC.

l. The Commanding General, FORSCOM, will plan for and provide EOD support and security forces to a CAI site when requested by the IRF or SRF commander.

m. The Commanding General, U.S. Army Training and Doctrine Command (TRADOC), will—

(1) Establish a surety program per this regulation.

(2) Provide the on–scene coordinator (OSC) and appropriate IRF staff outlined in DA Pam 50–6, chapter 2 and response forces for CAIs on TRADOC installations maintaining custody of chemical agents. If an SRF is required, provide the SRF commander and coordinate with AMC for additional SRF staff and technical CAIRA response assets.

(3) Identify, establish, and maintain training programs to support the Chemical Surety Program.

(4) Operate the Protective Purposes Production Facility (PPPF), for production of up to 10 Kg per calendar year of Schedule 1 chemicals for protective purposes, per the applicable provisions of the CWC.

n. The Commanding General, U.S. Army Medical Command (MEDCOM), will—

(1) Perform MACOM related duties required by this regulation for subordinate chemical agent operations.

(2) Establish a surety program per this regulation.

(3) Plan, direct, and supervise clinical, medical PRP evaluation, occupational, and environmental health service activities at installations with chemical agent missions through the installation medical authority.

(4) Approve, support, and oversee COCO facilities requiring research chemical agents necessary to accomplish medical RDA efforts.

(5) Assist AMC in the development and provision of standard surety, safety, and security contract clauses for use in DOD RDA contracts and agreements involving research chemical agents at COCO facilities.

(6) Coordinate with AMC for IRF and SRF commanders, staff, and appropriate response forces for CAIs at USAMRMC facilities having custody of research chemical agents.

(7) Provide a trained medical chemical advisory team for CAIRA operations to an OSC/SRF commander on notification of a CAI.

(8) Provide trained staff for on–post medical treatment facilities in support of installations and activities with chemical agent missions, including RCWM operations. The level of medical support will be sufficient to provide care for casualties associated with the maximum probable event (MPE) (see DA PAM 50–6, chap 6) and maintain back–up emergency medical support for on–post, contractor–operated medical treatment facilities supporting chemical agent operations.

(9) On request, serve as the contracting officer's representative (COR) to review health services provided by medical contractors at chemical agent storage and disposal facilities.

(10) Provide industrial hygiene support for installations and activities with chemical agent missions. Industrial hygiene support will meet the requirements of AR 40–5 and TSG medical policy.

(11) Provide medical training, as described in DA PAM 50–6, chapter 17 for medical response teams and medical augmentation teams to support CAIRA operations.

o. Commanding General, U.S. Army Test and Evaluation Command (ATEC) will–

(1) Establish a surety program per this regulation.

(2) Provide the on–scene coordinator (OSC) and appropriate IRF staff outlined in chapter 2 of DA Pam 50–6, and response forces for CAIs on ATEC installations maintaining custody of chemical agents. If an SRF is required, provide the SRF commander and coordinate with AMC for additional SRF staff and technical CAIRA response assets.

(3) Identify, establish, and maintain training programs to support the Chemical Agent Surety Program.

(4) Plan and conduct CAIRA exercises as outlined in paragraph 10–2.

p. Commanding General, U.S. Army, Pacific, will plan for and provide security and support forces to a CAI site when requested by the IRF or SRF commander.

q. Commanding General, U.S. Army Corps of Engineers will—

(1) Assume responsibility for recovery activities (remedial operations) from the SRF when directed by DCSOPS.

(2) Nominate Remedial Project Managers to the DCSOPS following a CAI when requested.

r. The Director, U.S. Army Nuclear and Chemical Agency (USANCA), will—

(1) Provide advice and assistance to the ARSTAF, MACOMs, and other Army organizations on surety matters by providing an interface between policy developers and operators.

(2) Conduct surety assistance visits to enhance the effectiveness of the surety program.

(3) Provide surety related information through USANCA publications.

(4) Prepare and forward the annual PRP status report to DOD.

(5) Establish and maintain a database on each chemical agent storage location.

(6) Perform other surety–related tasks as directed by the DCSOPS.

s. The Director, Army Safety Office (DACS–SF) will—

(1) Develop and manage an Army–wide chemical agent safety program.

(2) Coordinate and approve safety waivers and exemptions to personnel safety policies.

(3) Establish policy for investigating chemical events.

(4) Review surveys, inspections, installation plans, and general construction plans for chemical agent facilities and installations.

(5) Review the chemical agent safety programs of MACOMs to ensure adequacy and compliance with Army policy.

t. The Director of Military Support (DOMS) will provide assistance requested by State emergency response officials who have communities affected by a military CAI (per AR 500–60).

u. The Program Manager for Chemical Demilitarization will—

(1) Establish and operate a surety program per this regulation

(2) Identify, establish, and maintain training programs to support the surety program.

(3) Serve as contracting officer's representative (COR) to review health services provided by medical contractors at disposal facility clinics.

(4) Provide for the design, testing, and operation (design control, technical specifications, plant systemization, prove–out, and day–to–day plant operations) of chemical agent disposal facilities. Coordinate design features requiring changes in storage facilities, munitions handling procedures or security procedures with storage site commanders.

v. Commanders/Directors of activities and organizations with assigned missions to store, handle, transport, or demilitarize chemical agents will—

(1) Establish command surety programs.

(2) Establish installation/activity–specific CAIRA plans per DA Pam 50–6. Plans will be furnished to the next higher headquarters and will be consolidated at the installation level.

(3) Plan and conduct CAIRA exercises per chapter 10.

(4) Forward information, as required by this regulation, to Director, USANCA, for inclusion in the chemical site database.

w. Installation commanders hosting chemical agent disposal facilities and storage sites will—

(1) Establish a memorandum of understanding (MOU) with each chemical agent disposal facility that specifies the detailed responsibilities and working relationships between the host command and tenant disposal activities. The MOU will outline, review, and address procedures for each specific function required to exercise command responsibility of the installation.

(2) Ensure emergency response, environmental compliance, medical support, surety, community relations, and other activities necessary for safe, efficient destruction of chemical agent stocks and termination of surety status are coordinated between the installation and tenant disposal activity.

(3) Organize, train, and equip an IRF from installation assets. Emergency response plans will be integrated to constitute a unified response to an installation CAI.

(4) Plan and conduct CAIRA exercises per chapter 10.

(5) Halt any chemical agent storage or disposal plant operation when unsafe or environmentally unsound operations are observed.

(6) Establish (in coordination with the AMC and MEDCOM) overall medical support for chemical agent storage and disposal operations. This does not include disposal plant occupational health programs.

x. Commanders responsible for contracts requiring custody of chemical agents will—

(1) Ensure that MACOM–approved surety clauses are included in each contract requiring the use of chemical agent or RDTE dilute solutions of chemical agent.

(2) Ensure that contracts are modified to reflect updates to this regulation and supporting regulations.

y. The Director, U.S. Army Technical Center for Explosives Safety (USATCES) will—

(1) Provide final Army review and approval of chemical safety site and construction plans being submitted for approval to the Department of Defense Explosives Safety Board (DDESB).

(2) Track corrective actions resulting from DDESB chemical safety surveys.

(3) Process chemical exemption requests.

(4) Provide technical information and assistance in support of chemical agent safety to Army, MACOMs, and installations.

(5) Support land disposal site plan development.

(6) Provide chemical agent safety training to support Army safety career program requirements with the exception of the chemical demilitarization program.

(7) Conduct Army Safety Program assistance visits. Assistance visits will be scheduled and conducted per approved Army procedures.

z. Commanders of Medical Department Activities (MEDDACs) responsible for supporting installations with a chemical surety mission will designate a physician as the Chemical Surety Medical Support Program Director (CSMSPD).

aa. The Chemical Surety Medical Support Program Director (CSMSPD) will administer and manage the installation's medical support program. The CSMSPD must receive adequate training in the chemical surety mission (such as the Medical Management of Chemical Casualties and the Toxic Chemical Training for Medical Support Personnel course). The CSMSPD will spend at least 20 hours per week on site for clinical and/or administrative duties

1–5. Surety program concept

a. Chemical agents and chemical agent material subject to the provisions of the Army Chemical Surety Program are listed in appendix B.

b. The surety program is a system of reliability, safety, and security control measures designed to protect the local population, workers, and the environment by ensuring that only personnel who meet the highest standards of reliability conduct chemical agent operations, that chemical agent operations are conducted safely, and that chemical agents are secure.

c. Surety is a commander's program focused on the safe and secure storage and destruction of the chemical agent stockpile and the safe and secure use of research chemical agents in the research, development, and testing of chemical defensive measures.

d. Access to chemical agents will be restricted to authorized persons, and the number of persons allowed such access will be kept to a minimum. To maximize safety, the two–person rule will be strictly enforced (see glossary).

e. Chemical surety activities include the following:

(1) Compliance with mandated safety, operational, and technical procedures.

(2) Physical security measures to preclude unauthorized access or use of chemical agents.

(3) Procedures to assess the reliability of personnel designated for or assigned to chemical duty positions through the PRP.

(4) Training and/or experience applicable to the position assigned and verification that each individual in the PRP is proficient in the chemical duties to be performed.

(5) Storage, handling, maintenance, transportation, and accountability of chemical agents.

(6) Treatment and disposal of chemical agents.

(7) Emergency response, including CAIRA and CSEPP.

(8) Assessment of organizations and activities with chemical agent custody, handling, transport, or management missions.

f. Some subcategories of research chemical agents, (research, development, test, and evaluation (RDTE) dilute solutions; small quantities of neat chemical agents used in RDTE; and experimental chemical agents) and RCWM require only limited surety measures, depending on the relative dangers involved in their use, storage and transportation. Specific guidance is contained in chapter 6 (Research Chemical Agents) and chapter 7 (Transportation of Chemical Agents)

g. The requirements for managing Recovered Chemical Warfare Material (RCWM) will remain outside of the Army's Chemical Surety Program except as detailed in chapter 12.

1–6. Surety boards and officers

a. Surety officers. Commanders of installations, arsenals, depots, and other organizations responsible for surety programs (including chemical agent storage, movement, research, development, testing, training, and demilitarization) will appoint surety officers. Commanders will select surety officers who have technical knowledge of chemical agents, operations experience, and broad practical experience in surety procedures. Surety officers will—

(1) Manage day–to–day operations of the command's surety program.

(2) Monitor and evaluate the command's surety program.

(3) Act as the focal point for surety matters.

(4) Provide oversight for the safety, security, CAIRA, accountability, and PRP to ensure these programs are receiving the necessary emphasis.

b. Surety boards. Since an active and dynamic chemical surety board can assist the commander in successfully managing a command's surety program, commanders may establish local surety boards to assist in accomplishing their surety duties. The composition of the board depends on the command's mission and available external supporting agencies. Surety boards may be consolidated at installation level. Commanders will assign duties to surety boards as needed to assist in administering the command's surety program. Surety boards will assist by—

(1) Serving as the focal point for surety issues.

(2) Reviewing surety directives of higher headquarters to determine impacts on the organization's surety program.

(3) Developing the command's surety program.

(4) Reviewing and recommending administrative procedures, and operational and contingency plans and procedures.

(5) Developing solutions to command surety problems.

(6) Recommending allocation of resources to support surety–related operational and training activities.

(7) Recommending local procedures to implement PRP screening requirements.

(8) Fostering close coordination among all staff sections and activities that participate in the command's surety program.

(9) Reviewing procedures and criteria for submitting waivers (such as detailed information, requirements, compensating measures, etc.).

1–7. Supplemental guidance

a. This regulation does not restrict the authority of commanders to deviate from its policies and procedures in an emergency.

b. Commanders may cite this regulation as the authority for requesting resources necessary to enhance the safety, security, or personnel reliability of chemical agent operations.

c. CWC requirements.

(1) As a State Party to the CWC, the United States is bound to operate within the requirements set forth by the

treaty. Table B–1 lists specific chemical agents, precursors and toxins that are accountable under the CWC. Collectively, these materials are known as Schedule 1 chemicals.

(2) The United States is obligated not to produce, acquire, retain, transfer, or use Schedule 1 chemicals unless—

(a) The chemicals are applied to research, medical, pharmaceutical, or protective purposes; and

(b) The types and quantities of chemicals are strictly limited to those which can be justified for such purposes; and

(c) The aggregate amount of such chemicals at any given time for such purposes is equal to or less than 1 metric ton; and

(d) The aggregate amount for such purposes acquired by the United States in any year through production, withdrawal from chemical weapons stocks and transfer is equal to or less than 1 metric ton.

(3) DOD and Department of Commerce (DOC) have agreed to divide each of the 1–ton allowances on acquisition and possession between them (500 kg each).

(4) DOD possesses the designated Single Small Scale Facility (SSSF) and the Protective Purposes Production Facility (PPPF), which are the only facilities authorized to produce Schedule 1 materials for protective purposes. Protective purposes are defined as those purposes directly related to protection against toxic chemicals and to protection against chemical weapons, including chemical defensive training.

(5) DOD organizations will abide by these CWC obligations as delineated in this regulation.

d. Commands will forward requests for exceptions and waivers to the policies in this regulation through command channels to HQDA, ODCSOPS, ATTN: DAMO–SSD, 400 Army Pentagon, Washington, DC 20310–0400.

Chapter 2
Personnel Reliability Program

Section I
Introduction

2–1. General

This chapter establishes the chemical Personnel Reliability Program (PRP), as required by Department of Defense Directive (DODD) 5210.65, Chemical Agent Security Program. The purpose of the PRP is to ensure that each person who performs duties involving chemical agents meets the highest possible standards of reliability. The determination of reliability is accomplished through initial and continuing evaluations of individuals assigned to PRP duties. The PRP applies to United States citizens who are active duty military personnel, DOD civil service employees, and DOD contractor personnel.

2–2. PRP Elements

The PRP is a DOD program. This program includes—

a. Identifying and designating PRP positions.

b. Selecting, screening, and evaluating candidates on the basis of valid and favorably completed personnel security investigations (PSIs), screening of local records, and medical evaluations.

c. Conducting personal interviews and briefings by a certifying official.

d. Certifying of PRP suitability by a certifying official.

e. Assigning PRP certified personnel to a PRP position.

f. Continuing evaluation by supervisors, fellow workers, certifying officials, and support agency personnel.

g. Issuing medical restrictions from performance of chemical duties when required.

h. Disqualifying unreliable personnel temporarily or permanently when warranted.

i. Terminating PRP status administratively when an individual is no longer assigned to a PRP position.

2–3. PRP policy

a. It is Army policy that the lethal characteristics of chemical agents warrant extraordinary measures to ensure they are properly safeguarded against theft, loss, damage, or unauthorized use. The PRP is one of the cornerstones of this policy.

b. Commanders/Directors having custody of chemical agents will implement a PRP. Individuals certified into the PRP will be under continuing evaluation to ensure adherence to safety, security, and reliability standards. Individuals who do not meet or maintain program standards will not be selected for or retained in the PRP, or assigned chemical duties.

c. Commanders/Directors will designate certifying official(s) to certify individuals' suitability for the PRP. The certifying official is normally the commander or DOD military or civilian supervisor responsible for performing the assigned chemical agent mission. In large organizations where the commander may not have close personal contact with all the personnel he or she is required to certify, the commander may delegate the duties of certifying official.

Commander or directors who designate certifying officials become reviewing officials. Certifying officials are supervisors, team leaders, laboratory managers, or department heads that maintain close personal contact with the individual being certified and are responsible for implementation of the PRP. Although the certifying official may request information or advice from any support agency or activity capable of providing or interpreting such information, the decision to qualify an individual for, or to disqualify an individual from the PRP, is the responsibility of the certifying official, subject to review by the reviewing official.

d. Certifying officials must be military or DOD civilian personnel. DOD contractor personnel are prohibited from acting as certifying officials.

e. No one will be assigned to a PRP position until the certifying official screens and certifies the individual as suitable for the PRP. Before the certifying official assumes duties, the reviewing official must screen and certify the certifying official into the PRP, except as stated in paragraph 2–10(b). Unless otherwise required, the position of the reviewing official need not be identified as a PRP position.

f. Certifying officials will—

(1) Determine PRP suitability and ensure that individuals are qualified, trained, and are proficient before being assigned to chemical duties.

(2) Continuously evaluate personnel assigned to PRP positions.

(3) Promptly remove, or in contracted operations, direct the contractor to remove from chemical duties, any individual whose reliability becomes suspect. In such cases, the certifying official will take prompt action to expeditiously resolve the issue and either reinstate or permanently disqualify the individual.

g. The Privacy Act of 1974 will apply. Additionally, all personnel wishing to be considered for assignment to the PRP must grant authority for release of information and records to allow the certifying official and other authorized officials to review medical, personnel, and security files. If an individual does not grant permission for the records check and review, that person is not eligible for the PRP.

h. For government–owned, contractor–operated (GOCO) and contractor–owned, contractor–operated (COCO) facilities with chemical agent missions, the Army contracting officers representative (COR) (or properly designated subordinate) will serve as the certifying official for DOD contractor employees authorized to perform chemical duties. Section VIII contains supplemental guidance for PRP certification of contractor employees.

i. Certifying officials may appoint PRP monitors to assist in administering the day–to–day functions of the PRP. PRP monitors may also be appointed at installation or activity level to administer the consolidated day–to–day functions of multiple certifying officials. PRP monitor duties include coordinating and disseminating PRP information, indoctrinating and training PRP personnel on program objectives and procedures, and conducting staff assistance visits to all subordinate units with a PRP. The PRP monitors are not required to be in the PRP unless they are assigned chemical duties (see para 2–4a).

j. Changes in the PRP assignment status of military personnel will be reported per AR 600–8–11, AR 600–8–23, AR 600–8–104, AR 680–29, and DA Pam 600–8–23.

2–4. Identifying chemical PRP positions/chemical duty positions

a. Certifying officials will identify each position required to accomplish chemical duties. Chemical duty positions are held by personnel who—

(1) Require routine access to chemical agents under the two–person rule.

(2) Control entry into limited or exclusion areas and preclude unauthorized access to areas containing chemical agents.

(3) Are operators of chemical demilitarization facility equipment that robotically disassembles chemical munitions/containers or handle chemical agents/munitions during the demilitarization process.

(4) Monitor intrusion detection systems (IDS) for chemical agent limited and exclusion areas. This requirement does not apply to military police personnel monitoring IDS at on–post Category III RDTE facilities or to contract personnel monitoring IDS at off–post Category III RDTE facilities.

(5) Are armed and assigned to security posts (both fixed and mobile) inside chemical agent limited and exclusion areas.

(6) Control access to chemical agents during movements.

(7) Are pilots and crew of aircraft transporting chemical agents.

(8) Are certifying officials.

(9) Are IDS maintenance personnel for limited and exclusion areas containing chemical agents. This requirement does not apply to contract personnel at off–post Category III RDTE facilities.

(10) Are designated as key control officers for limited and exclusion areas containing chemical agents and key custodians for two–person control system keys.

(11) Are material handling equipment operators and drivers of vehicles involved in the movement of chemical agents.

(12) Are members of the U.S. Army Technical Escort Unit (TEU) requiring access to chemical agents.

(13) Are escorts designated to support chemical weapons agreement inspection and /or monitoring teams requiring access to chemical agents.

b. Personnel assigned to chemical duty positions will be placed in the PRP.

c. Explosive ordnance disposal (EOD) and chemical accident/incident (CAI) response personnel are not required to be in the PRP. These personnel will be given access only to the extent necessary to mitigate or eliminate a hazard during an emergency.

2–5. Chemical duty position roster (CDPR)

a. Each organization or activity assigned a chemical agent mission and required to implement a PRP will establish and maintain a CDPR. The CDPR will—

(1) Identify the minimum number of PRP positions required to accomplish the assigned chemical agent mission. Vacant PRP positions will be listed.

(2) Identify individuals who are certified in the PRP, and trained and proficient in assigned chemical duties.

b. The certifying official will provide a copy of the CDPR and any changes to the supporting personnel office, medical activity or contract physician (to include those activities that maintain the records identified in para 2–20), dental facility, alcohol and drug control officer, and security officer.

c. The certifying official or an individual designated to sign for the certifying official will authenticate the CDPR by signing the last page. Individuals who authenticate the CDPR must be assigned to a PRP position listed on the CDPR. Certifying officials who authenticate CDPRs for contractor personnel do not have to be listed on the contractor's CDPR.

d. The CDPR, which may be in any format, will contain the following information:

(1) Unit or organization designation.

(2) Effective date.

(3) Name (last, first, MI).

(4) Social security number (SSN).

(5) Job position title or chemical duties performed. (See para 2–5f for further information.)

(6) Medical surveillance category (A, B, C, or D when applicable). (See DA Pam 40–8 and/or DA Pam 40–173.)

(7) Page number (such as page 4 of 5).

(8) PSI type/date investigation completed (such as NAC/5 Feb 98).

e. Certifying officials will designate only the minimum number of PRP positions to meet chemical agent mission requirements. The certifying official's signature on the CDPR serves the following two purposes:

(1) Ensure that all personnel on the CDPR are certified to perform PRP related duties; and

(2) That the commander has reviewed all current position and that they are required to perform the activities assigned mission.

f. Certifying officials may list either the individual's job title (from table of distribution and allowances/modification table of organization and equipment or other manning/staffing document) or the actual chemical duty(s) performed. It is acceptable to just list the applicable sub–paragraph from paragraph 2–4a (for example 2–4a(8) for certifying officials). A consistent approach will be used for each CDPR. If a certifying official decides to list chemical duties on the CDPR, then all chemical duties that the individual is qualified to perform will be listed.

g. Individuals who are interim certified (see para 2–13b) will be clearly indicated on the CDPR. This documents the certifying official's justification of the need for interim certification.

h. Units may have individuals who are in the PRP undergoing continuing evaluation (completed DA Form 3180), but who are not yet assigned to a PRP position (such as personnel in training, personnel on levy for PRP assignments). Certifying officials may, for convenience, also list these individuals on their CDPRs provided they are clearly identified as being in a training status.

i. Certifying officials will delete from the CDPR individuals who are administratively terminated or permanently disqualified. Certifying officials will not delete names of personnel medically restricted or temporarily disqualified.

j. Each certifying official will maintain a CDPR. It is permissible to consolidate CDPRs at the organization or installation level provided the CDPR information of each subordinate activity is listed separately and authenticated by subordinate activity's certifying official or designated individual.

2–6. Technical proficiency

a. Before authorizing an individual to perform chemical duties, the certifying official will ensure that any required formal instruction is completed, and/or the individual has the requisite experience applicable to the PRP position assigned and is proficient in assigned chemical duties. On–the–job training (OJT) is authorized. Normally, OJT entails the restriction of the individual's access to chemical agents during the training period. However, if the training requires access to chemical agents, the individual being trained may be granted access providing he/she is under the direct supervision of two fully trained and PRP certified individuals capable of satisfying the two–person rule.

b. The certifying official's verification of technical proficiency takes place initially when an individual's name is

added to the CDPR. The certifying official must also ensure that members in the PRP receive any required refresher training for currently assigned chemical duties and receive appropriate new training if additional chemical duties are assigned.

Section II
Reliability Standards

2–7. General

The certifying official will make a judgment on the reliability of an individual based on an investigation and evaluation of the individual's personnel security eligibility, physical and mental capability, personnel and medical records, and a personal interview. The certifying official will consider all relevant facts on the individual's current and past duty performance, the recommendations expressed in the personnel security investigation and medical evaluation. It will also include the opinion of other agencies and personnel, as appropriate, in making the final judgment about an individual's reliability when performing chemical duties.

2–8. Qualifying factors/requirements

Certifying officials will use the following PRP qualifying standards/requirements in determining an individual's suitability for the PRP.

a. Criteria. The following are the reliability standards expected of all PRP members.

(1) Physical competence, mental alertness, and technical proficiency commensurate with duty requirements.

(2) Evidence of dependability in accepting responsibilities and effectively performing in an approved manner; flexibility in adjusting to changes in the working environment.

(3) Evidence of good social adjustment, emotional stability, and ability to exercise sound judgment in meeting adverse or emergency situations.

(4) Positive attitude toward chemical duties and the PRP.

b. Initial interview. The certifying official will conduct a personal interview with each candidate for PRP duties to look for evidence of the individual's perception of responsibility, exercise of sound judgement, effective performance, and ability to adjust to changes in the work environment.

c. Personnel security investigation (PSI). A favorable investigation conducted per AR 380–67 will reflect an affirmative finding that an individual's personnel security eligibility is consistent with the interest of national security.

d. Personnel records review. Look for evidence of the individual's acceptance of responsibility, exercise of sound judgement, effective performance, and ability to adjust to changes in the working environment.

e. Medical evaluation. The certifying official must be totally confident that the individual being certified is both capable and reliable. To accomplish that, the competent medical authority (CMA) (as defined in glossary) must provide the certifying official an evaluation of the individual's physical capability and mental reliability to perform PRP duties. All potentially disqualifying medical information must be documented in the individual's health records. The CMA will provide the certifying official with sufficient medical information to make a sound judgement on an individual's suitability for the PRP.

f. Urinalysis testing. Personnel will undergo urinalysis testing per paragraphs 2–16 and 2–24.

g. Position qualification. The individual must have technical proficiency commensurate with assigned chemical duties.

2–9. Disqualifying factors/actions on detection

Any of the following traits, diagnoses, conditions, or conduct as listed in paragraphs a through k below is grounds for the disqualification of individuals from the PRP. The list is not all encompassing and contains only examples of disqualifying factors.

a. Alcohol dependent/alcohol abuser. Based on the circumstances, certifying officials will either permanently or temporarily disqualify (see sec VI) any individual diagnosed as alcohol dependent or an alcohol abuser. A CMA will determine whether an individual is alcohol dependent or an alcohol abuser.

(1) An individual diagnosed as alcohol dependent, or already permanently disqualified for alcohol dependence, may be requalified for PRP duties only after meeting the following conditions:

(a) The individual successfully completes an initial intensive rehabilitation, if prescribed, followed by a 1–year period of strict compliance with aftercare requirements, regular and frequent participation in meetings with Alcoholics Anonymous or a similar organization, and abstention from alcohol.

(b) A PRP qualification screening, including mental health evaluation and a favorable prognosis by CMA, has been completed and forwarded in the request for requalification (see para 2–31 for guidance on the requalification process).

(c) The responsible certifying official must determine that the value of the individual's presence in the PRP outweighs the risk from potential future alcohol–related incidents and must document that fact he/she has full trust and confidence in the member's reliability.

(2) An individual temporarily disqualified for alcohol dependence may have the temporary disqualification removed

and be returned to PRP duties after successfully completing at least one half of the prescribed aftercare program. A favorable prognosis by the CMA is required before an individual can be returned to PRP duties.

(3) An individual diagnosed as an alcohol abuser but who is not alcohol dependent, or already temporarily/permanently disqualified as an alcohol abuser, may be returned to PRP duties only after meeting the following conditions:

(a) The individual successfully completes a minimum 180–day rehabilitation program, or treatment regime, prescribed by the CMA.

(b) The individual demonstrates positive changes in job reliability and lifestyle.

(c) The CMA provides a favorable medical prognosis.

b. Alcohol–related incidents. Certifying officials will temporarily disqualify any individual involved in an alcohol–related incident. The certifying official will investigate the circumstances and request a medical evaluation. An individual not diagnosed as alcohol dependent/abuser may be returned to PRP duties when the certifying official determines the individual to be reliable, based on results of the investigation and the medical evaluation.

c. Drug abuse.

(1) Except for the category of individuals identified in subparagraph 2–9c(6) and (7) or otherwise provided in this regulation, any use, admitted or otherwise disclosed, of illicit drugs such as marijuana or cannabis–based products, heroin, heroin derivatives, cocaine, "crack," phencyclidine (PCP), lysergic acid diethylamide (LSD), "ecstasy," or other "designer" drugs, amphetamines, barbiturates, or other narcotic drugs not prescribed by proper medical authorities, and anabolic steroids will render an individual ineligible for admission to or retention in PRP duties. Certifying officials having any doubt on the status of a certain drug (illicit, illegal, or controlled), will consult the CMA. Additional assistance may be requested from the MACOM or supporting legal office. If the substance is deemed illicit, illegal, or controlled, the individual will be permanently disqualified from the PRP.

(2) Inadvertent overdose of prescription or over–the–counter medication that does not result in a long–term side effect will not necessarily require the individual to be permanently disqualified.

(3) Any individual suspected of using illegal drugs while in the PRP will be temporarily disqualified and referred for an Army Substance Abuse Program (ASAP) evaluation or one provided by a private accredited substance abuse counseling service. On receipt of the evaluation, the certifying official will either initiate permanent disqualification action or reinstate the individual into the PRP as appropriate.

(4) Any individual found to have been involved in unauthorized trafficking, cultivation, processing, manufacturing, or sale of any narcotic or dangerous drug such as those mentioned above, or marijuana or cannabis–based products, will be ineligible for PRP duties. Such individuals will be permanently disqualified.

(5) Any individual found to inappropriately use other substances to alter perceptions or mental faculties, such as sniffing glue, aerosol fumes, or any other substance not intended for human ingestion will be permanently disqualified.

(6) It is not the intent of this regulation to automatically render ineligible for the PRP any individual who before 25 May 1993 has disclosed pre–service/pre–employment drug abuse, or who has not yet been asked to make such disclosure and who is currently certified for PRP duties after having been formally screened per then–existing guidance. Further requalification of such individuals for future PRP status will be per this regulation, except that previously disclosed and considered drug abuse and pre–service/pre–employment drug use not required previously to be disclosed, will not be the sole grounds for denial of requalification or mandatory disqualification.

(7) Pre–service/pre–employment marijuana, hashish, or other cannabis–based products used on an experimental or infrequent basis does not necessarily render an individual ineligible for consideration for, or retention in, a PRP position. It is incumbent on the certifying official, with CMA consultation, to determine the degree to which the pre–service/pre–employment use impacts the reliability of the individual. An individual being screened for the PRP (having disclosed pre–service/pre–employment use of marijuana, hashish, or other cannabis–based products) may be certified in the program if a CMA's medical evaluation establishes no cannabis dependency, and there is no additional information that would cause the certifying official to doubt the individual's reliability. If the pre–service/pre–employment cannabis use is discovered after an individual is already in the PRP, and there is no other information that would cause doubt about the individual's reliability, the certifying official, with CMA consultation, may retain the individual in the PRP. If the certifying official has reason to doubt or suspects the individual's reliability for PRP duties, the certifying official will take the following actions:

(a) Temporarily disqualify the individual.

(b) Conduct an evaluation of the individual's drug abuse involvement and current and past duty performance.

(c) Initiate a PRP qualification screening, including a complete medical evaluation.

(d) Justify and document any decision to retain the individual in the PRP. The documentation will include a determination that retention is in the best interest of the service and national security, and statements by the reviewing and certifying officials that the individual's reliability is not in doubt.

(e) Permanently disqualify individuals determined to be unsuitable for retention in the PRP.

d. Negligence or delinquency in performance of duty. Because a good indication of reliability is past performance, the certifying official will review the PRP candidate's job or duty history for evidence of desirable traits such as dependability, flexibility, and good judgement. In determining reliability, the certifying official must evaluate all

aspects of an individual's actions. For example, clear instances of youthful indiscretion are not necessarily proof of negligence or unreliability.

e. Conviction of, or involvement in, a serious incident. A PRP candidate's background will be reviewed for behavior patterns that show or suggest a contemptuous attitude toward the law, regulations, or other duly constituted authority. Serious incidents include, but are not limited to assault, sexual misconduct, financial irresponsibility, inordinate number of traffic tickets, and child or spouse abuse.

f. Medical condition. Any significant mental or physical medical condition substantiated by a CMA or aberrant behavior considered by the certifying official to be prejudicial to reliable performance of PRP duties may be considered as grounds for permanent disqualification from the PRP.

g. Hypnosis. The CMA will evaluate personnel treated with hypnotherapy and make a recommendation on their suitability for duty in the PRP.

h. Serious progressive illnesses. Certifying officials will be notified immediately of any individual being considered for or currently performing in a PRP position who has been diagnosed with a serious progressive illness. This includes Acquired–Immune Deficiency Syndrome (AIDS) or testing positive for the Human Immunodeficiency Virus (HIV). The certifying official will take the necessary actions to screen the individual both medically and psychologically. However, individuals with AIDS or who are HIV positive will not be treated differently than other individuals with other serious progressive illnesses solely on the basis of being diagnosed with AIDS or testing HIV positive. As with all potentially disqualifying medical conditions, the certifying official must decide each case on the specific medical and other pertinent evaluations of the individual involved. The primary consideration in all determinations must be that of personnel reliability.

i. Poor attitude or lack of motivation. Any display of poor attitude or lack of motivation as evidenced by aberrant attitude (arrogance, inflexibility, or suspiciousness), behavior (impulsiveness, destructiveness, or suicide threats), or mood (unusual happiness, sadness, or agitation) may be grounds for permanent disqualification.

j. Suicide attempt. Any suicide attempt, disclosed and considered after the date of this revision, will be cause for permanent disqualification.

k. Cannot wear protective equipment. Inability to wear personal protective equipment required by the assigned position will be cause for permanent disqualification.

Section III
Administrative Screening

2–10. Administrative screening before PRP assignment

a. The losing organization will screen and evaluate all military and DOD civilian personnel with orders directing reassignment to a chemical PRP position before travel. The individual must meet qualifications cited in assignment orders. Orders of permanently disqualified soldiers will be cancelled per AR 600–8–11.

b. Personnel who act as certifying officials only for the purpose of administrative screening need not be in the PRP.

c. Personnel assigned or scheduled for assignment to PRP positions must have their personnel and medical records screened, and have a current and favorably completed PSI. Follow the procedures outlined in paragraphs 2–13 through 2–15 to complete this screening. The sequence of medical and personnel screening and administrative processing may be adapted to meet the needs of the certifying official or agencies.

d. If the certifying official finds the levied individual suitable for PRP duties after completion of the screening, the certifying official will brief the individual per paragraph 2–17.

e. DA Form 3180 (see AR 50–5) will be completed for each individual screened and evaluated for the PRP. Copies of the signed DA Form 3180 (through part V) will be distributed per paragraph 2–17, and the individual will be placed under continuing evaluation.

f. Drug abuse screening/urinalysis testing (para 2–16) is not required to complete the PRP administrative screening process.

g. Individuals pending reassignment to a chemical PRP position who are currently in the PRP will not be administratively terminated (see para 2–30).

h. The certifying official will permanently disqualify any individual found unsuitable for the PRP (see para 2–29).

Section IV
Certifying Official's Screening

2–11. General

The concept of personnel reliability is a vital element of the Chemical Surety Program. An individual is presumed reliable when there is no evidence of unreliability. In the absence of a test for reliability, the PRP provides a process for initial screening and continuing evaluation of an individual's health, attitude, behavior, and duty performance while assigned to a PRP position, or in the case of paragraph 2–10 above, being transferred into a PRP position. The

certifying official, based on the absence of evidence to the contrary, determines an individual's suitability for and retention in the PRP.

a. PRP screening occurs by the following:

(1) By the losing organization before departure when orders direct reassignment to a PRP assignment at another organization or installation (see para 2–10).

(2) Before being assigned to PRP positions.

b. DA Form 3180 will be completed for each individual screened and evaluated for the PRP. The sequence of medical and personnel screening and administrative processing may be adapted to meet the needs of the certifying official or agencies. Facsimile stamps will not be used for signatures on the DA Form 3180. The certifying official may make a determination of unsuitability at any time during the screening process.

c. Certifying officials of organizations receiving medical support from non–Army facilities or from United States civilian contract physicians will provide a copy of this regulation to the supporting medical facility contract physicians for use in evaluating personnel for the PRP.

2–12. Initial interview

a. To initiate the screening process, the certifying official (or designated representative) will interview each PRP candidate. The certifying official will—

(1) Inform the candidate of the Privacy Act and provide the candidate with a copy of the Privacy Act statement. If the candidate objects to the required screening, the screening process will be discontinued.

(2) Review with the candidate the concept of the PRP and the reliability standards, both qualifying and disqualifying (sec II) for assignment to or retention in a PRP position. The certifying official will ensure that the candidate understands the traits and conduct normally considered disqualifying. The certifying official will—

(a) Determine whether the candidate has ever used illicit drugs or has been involved in the unauthorized trafficking, cultivation, processing, manufacturing, or sale of any narcotic or dangerous drugs or cannabis products.

(b) Determine whether any of the other traits or conduct normally considered disqualifying exist.

(c) Explain that personnel assigned to chemical duty positions must be able to wear protective

(d) If there is any doubt regarding clothing and equipment, the matter will be resolved at this point.

(e) Explain the importance of PRP assignments and the responsibilities involved in associated chemical duties.

(f) Explain the continuing evaluation aspects of the PRP to include each individual's responsibility to actively participate in this evaluation and that personnel found suitable for PRP duties remain under continual evaluation until either permanently disqualified or administratively terminated.

(g) Complete DA Form 3180, part 1.

b. Should the certifying official determine that the candidate is unsuitable for the PRP (see para 2–9), the certifying official will terminate the PRP screening process and follow procedures for permanent disqualification (para 2–29). For civil service applicants who are not current Federal employees, the certifying official will return the interview referral slip to the placement specialist. Contractors may terminate the PRP screening process per internal procedures at any time before the involvement of the government certifying official. Procedures for permanent disqualification do not need to be followed unless the contractor employee is currently in the PRP.

c. Should the certifying official determine that the candidate is acceptable for further screening, the screening process will be completed per local procedures.

2–13. Personnel security investigations (PSI) and clearance requirements

a. NACIC. Personnel scheduled for initial assignment to PRP positions must have favorably adjudicated ENTAC or higher level PSI completed within 5 years of appointment to the PRP. In addition, there must be no break in active Federal service or employment longer than 2 years occurring between completion of the investigation and initial assignment. In cases where the investigation ended more than 5 years before initial assignment or where a break in active Federal service or employment exceeded 2 years after completion of the investigation, the PSI is outdated for PRP purposes and a new investigation is required.

b. Interim certification. Interim certification is authorized for an individual who does not meet the requirement of a current ENTNAC, NAC, and/or NACIC, that is, completed within the past 5 years, subject to the following conditions:

(1) The individual's favorable ENTNAC and/or NAC and/or NACIC and/or higher PSI is more than 5 years old, and no break in active Federal service or employment has exceeded 2 years since the date the investigation was completed. Service as a cadet at any of the four Service academies may be considered "active service;" however, for purposes of this regulation, ROTC enrollment and active duty for training by Reserve component soldiers will not be considered "active service".

(2) A new NAC and/or NACIC must have been requested and all other requirements of the PRP screening process have been completed.

(3) The individual must be identified to supervisory personnel, entry controllers who directly control access to

exclusion areas, and others (as necessary) as having interim certification status. The CDPR, entry authorization lists, and individual access badges must be specifically marked to designate interim certification status.

(4) The individual will not be paired in a two–person team with another individual also having only interim PRP certification.

(5) If the NAC and/or NACIC is not completed within 120 days of the date requested, the certifying official will request a reason for delay from the Defense Security Service (DSS). The certifying official will then determine whether to continue or withdraw the interim certification.

c. Supplemental guidance.

(1) DA Form 873 (Certificate of Clearance and/or Security Determination) issued by the Commander, U.S. Army Central Personnel Security Clearance Facility (CCF), DSS Form 1 or DSS Form Letter 72 are evidence of a favorable investigation. In the absence of these forms, the certifying official must coordinate with the local security manager to determine if the existing PSI is favorable. Based on telephonic coordination with CCF or DSS, evidence of a favorable investigation may be in the form of a memorandum prepared by the local security manager. The memorandum will indicate the security manager coordinated with CCF or DSS after waiting 120 days with no written notice. The memorandum will also indicate that no derogatory information was received and, therefore, the investigation is considered favorable.

(2) Certifying officials do not have to review PSI investigative files (dossier) for personnel being assigned to PRP positions. However, certifying officials may request a dossier be made available for review whenever they believe it is necessary. (See AR 381–45.)

(3) PSIs completed on Reserve component service members and ROTC cadets are valid for PRP purposes as long as the individuals enter active duty within 2 years of the PSI completion date (DOD contractor employment with access to classified information or in the PRP is considered the same as DOD employment).

(4) During administrative screening, individuals will not be found unsuitable for the PRP on the basis of an inadequate or outdated PSI. If the PSI is outdated for the PRP, a request for a new PSI will be submitted as part of the administrative screening before travel. Travel will not be delayed pending completion of a PSI. However, if the command is aware that the PSI has developed derogatory information potentially reflecting on PRP or security clearance eligibility, travel will be delayed. Commands will only deny travel if final PSI results are unfavorable and/or the security clearance, if required, is denied, or the individual does not meet the requirements of paragraph 2–13b for interim certification.

(5) Individuals on whom the appropriate security office has submitted a request for a periodic review (PR) before the expiration date of their PSI, will remain certified for PRP purposes. Individuals whose PSI lapses before submission of the PR, will be temporarily disqualified until submission of the PR request at which point they will be returned to a fully certified status pending the completion of the PR.

2–14. Personnel records screening

The supporting personnel officer or a designated representative will screen the military personnel records jacket (MPRJ) or the civil service employee's official personnel folder (OPF) and complete the appropriate portions of DA Form 3180, part II. For contractor employees, the contractor's personnel manager or a designated subordinate will perform the screening. The screening official will—

a. Coordinate with the security manager to determine whether the PSI is valid for PRP purposes (para 2–13). Also, verify that the individual has not had a break in active duty military service or DOD employment of more than 2 years since the PSI was completed. If the PSI is not valid, a request for a new PSI will be submitted per AR 380–67.

b. Determine the individual's citizenship. If not a United States citizen or United States national, advise the certifying official that the individual is ineligible for the PRP. As appropriate, initiate a request for deletion from the assignment.

c. Determine if the individual's records contain information that may preclude assignment to a PRP position. When potentially disqualifying information is identified (see para 2–9), place it in a sealed envelope marked "EXCLUSIVE FOR" and provide it to the certifying official per local procedures.

d. Process the DA Form 3180 (as appropriate) per local procedures.

2–15. Medical/Dental evaluation

a. As part of the required screening process, medical histories and local records, if they are sufficiently comprehensive and current, will be evaluated to determine the candidate's physical and mental qualifications under the standards for the PRP.

(1) A CMA must screen military health records (HREC) and civilian employee medical records (CEMR). When the review is accomplished by other than the CMA and raises a question or identifies potentially disqualifying information about an individual's physical capability or mental suitability for assignment to a PRP position, the records will be referred to the CMA for further evaluation or medical examination.

(2) If available medical records are inadequate, the CMA will conduct a medical examination to determine medical qualification under PRP standards. The medical evaluation will include a mental health consultation when deemed

prudent by the CMA or at the request of the certifying official. The CMA will document all potentially disqualifying information of a medical nature in the individual's medical records.

(3) The CMA will annotate the SF 600 with a statement indicating that the individual and/or individual's records have been screened under the reliability standards of AR 50–6. In addition, the SF 600 will indicate the nature of any potentially disqualifying information and a statement indicating that potentially disqualifying information has or has/not been forwarded to the certifying official. The medical record entry will include the name, grade, and signature of the official conducting the screening and the date of the screening.

(4) The CMA will complete DA Form 3180, parts III and IV (as appropriate) and check the appropriate block indicating whether information which may preclude assignment to the PRP is or is not attached. The CMA will advise the certifying official of any condition that may reflect on an individual's suitability for assignment to a PRP position. This includes any prescribed medication or treatment that may detract from the ability of an individual to perform chemical duties. The CMA will also provide a recommendation to the certifying official as to whether the identified potentially disqualifying information will preclude the individual from performing chemical duties. The CMA will identify any limitations in duties or reasonable accommodations that might allow the individual to safely and reliably perform such duties (see Americans with Disabilities Act, 42 USC 12101–12111, and implementing regulations in 29 CFR Part 1630). The CMA will not recommend any accommodations that could cause injury to the individual or another worker. Safety will be considered and the safety officer will evaluate any change. Persons with a disability will not be discriminated against, but worker safety will not be compromised. When the CMA identifies potentially disqualifying information, it will be placed in a sealed envelope, marked "EXCLUSIVE FOR" and provided to the certifying official per local procedures. Because potentially disqualifying information (PDI) is often confidential medical information covered by the Privacy Act, electronic mail systems will not be used to transmit PDI. However, electronic mail may be used by the CMA to notify a certifying official that a memorandum transmitting PDI has been prepared and is being forwarded or awaiting pickup.

b. Certifying officials and reviewing officials may direct the review of health records of personnel being screened for the PRP or those currently in the PRP at anytime to make suitability determinations required by this regulation. The CMA will conduct the review to prevent any possible misinterpretation of health record data. Because of the sensitive and confidential nature of health records, authority to direct the review extends only to certifying officials and reviewing officials. Certifying officials may not delegate this authority to contractor employees assisting the certifying official without the written consent of the employee.

(1) The authority to review health records also extends to Army Substance Abuse Program (ASAP) information for military personnel (authorized under AR 600–85, para 7–4) and the Employee Assistance Program (EAP) for civilian personnel (established by 5 USC section 7904). In civilian PRP personnel cases, 42 USC section 290dd–2, as implemented by 542 CFR Part 2, prohibits the release of substance abuse information without the patient's written consent. Certifying officials cannot require civilian employees to sign substance abuse consent forms as a condition of employment. Certifying officials must rely on the continuing evaluation aspects of the PRP in such circumstances to detect drug or alcohol problems.

(2) Certifying and reviewing officials may not release or discuss the content of health records except as provided in the preceding paragraph or as otherwise permitted by the Privacy Act of 1974. Refer questions to the servicing legal office.

(3) For contractor operations that require the establishment of a PRP, contracts must include provisions for official access to contractor PRP health records as a prerequisite for certifying and reviewing employee PRP eligibility.

c. On completion of medical screening, process the DA Form 3180 per local procedures.

d. Certifying officials of organizations receiving medical support from non–Army medical facilities or from United States civilian contract physicians will provide a copy of this regulation to the supporting medical facility contract physicians for use in evaluating personnel for the PRP.

2–16. Drug abuse screening/urinalysis

All military and DOD civilian employees who are candidates for the PRP must undergo urinalysis testing per AR 600–85 before being certified into the PRP. DOD contractor employees also have to undergo drug abuse screening before the certifying official may certify a contractor employee into the PRP. (See para 2–24 for special handling requirements on urinalysis results for DOD civilian and DOD contractor employees.)

2–17. Certifying official's evaluation and briefing

After the personnel record screening and medical evaluation are complete, the certifying official will review DA Form 3180 and any potentially disqualifying information provided during the screening process. The certifying official will also verify the required PSI is current or initiated.

a. For individuals found suitable for the PRP, the certifying official will complete Part V, DA Form 3180, part V and brief the individual in the following areas:

(1) That the individual has been found suitable for the PRP.

(2) The duties and responsibilities of the individual's PRP position.

(3) Any hazards associated with the individual's assigned chemical duties.

(4) The two–person rule, to include restrictions placed on interim status personnel.

(5) The current threat and physical security procedures used to counter this threat.

(6) Each person's obligations under the continuing evaluation aspects of the PRP. The individual will be instructed to observe and report directly to the certifying official any factor, behavior, or condition (to include use of prescribed medication) that may adversely affect either the individual's duty performance or that of fellow workers. The certifying official will also emphasize that the individual must immediately report any medical treatment received, or medication prescribed by non–DOD medical or dental facilities.

b. At the close of the briefing, the individual and the certifying official will complete DA Form 3180, part VI. The individual's signature indicates that a briefing on the standards and objectives of the PRP was received and understood.

c. Distribute the DA Form 3180 as follows:

(1) The installation will maintain the original or a copy.

(2) Send one copy (or original if not maintained at local installation) to the custodian of the individual's MPRJ or OPF, or to the contractor's personnel management office.

(3) Send one copy to the supporting medical activity and maintained in the individual's file.

(4) Send one copy to the supporting dental activity and maintained in the individual's file.

d. If the certifying official determines an individual unsuitable for a PRP assignment, the certifying official will terminate the screening process, complete DA Form 3180, parts V and IX and follow procedures for permanent disqualification (para 2–29).

2–18. Previously screened personnel

a. Whenever a PRP certified individual transfers to another PRP position under a different certifying official, the gaining certifying official must interview the individual before assignment to the new PRP position. A rescreening of medical and personnel records will be conducted whenever the records move to a new organization or location. The rescreening of records helps ensure that the new certifying official has current and complete information about the individual's job performance and reliability before the interview.

b. If the reassignment does not involve movement of medical and personnel records, the certifying official may assign the individual to a PRP position based on an interview and the previous screening and evaluation. The certifying official will use the DA Form 3180 from the individual's last assignment. The certifying official will complete the next blank line in DA Form 3180, part VI to indicate that the required interview and briefing was done. If all lines in part VI are filled, the current DA Form 3180 may be continued by entering the individual's name, grade, and SSN and completing part VI of a new DA Form 3180 and stapling it to the current form. If the certifying official decides to use the individual's DA Form 3180 from the last assignment, the certifying official will—

(1) Verify PSI and security clearance (if applicable).

(2) Interview and brief the individual per paragraph 2–17.

(3) Distribute copies of the individual's DA Form 3180 per paragraph 2–17c.

c. When an individual arrives from a non–PRP assignment with a DA Form 3180 completed from administrative screening (para 2–10), the gaining certifying official will completely rescreen and execute a new DA Form 3180 before assigning the individual to PRP duties.

d. Figure 2–1 provides a summary of the above screening requirements.

e. A new PSI is required under any one of the following conditions:

(1) Personnel assigned to serve in PRP duties will have a PSI PR every 5 years, regardless of when they were last certified into the PRP; or–,

(2) A break in active duty military, DOD civilian, or DOD contractor employment exceeding 2 years; or–

(3) If the certifying official requests a new PSI based on significant derogatory information or allegations.

2–19. Identifying personnel records

On receipt of the signed DA Form 3180 (original or duplicate), showing an individual is in the PRP and under continuing evaluation DA Form 3180, parts V and VI completed), the personnel officer will affix DA Label 164 (Nuclear/Chemical Personnel Record Label) to the personnel records.

2–20. Identifying health records

On receipt of a copy of the signed DA Form 3180 showing an individual is in the PRP and under continuing evaluation (DA Form 3180, parts V and VI completed), the medical treatment facility will identify the individual's health and dental records per AR 40–66. If an Army medical or dental treatment facility maintains the records, DA Form 4515 (Personnel Reliability Program Record Identifier) will be inserted in the folder. When another Service's medical treatment facility maintains the records, the host service's comparable form(s) may be used to identify Army PRP records. The following types of records will also be identified when maintained apart from the individual's health records:

a. Inpatient (clinical) treatment records.
b. Outpatient treatment records.
c. Dental records.
d. Clinical psychology individual case files.
e. Social work individual case files.
f. Alcohol and drug abuse rehabilitation files.

1. Individuals entering their first PRP assignment or being reassigned from non-PRP position to a PRP position:* Complete screening required. Initiate DA Form 3180.
2. Individuals transferring from one PRP assignment to another, which does <u>not</u> require transfer of personnel and medical records: Complete rescreening not required. Gaining certifying official: -verifies PSI / clearance if applicable -conducts interview/briefing -completes next blank line in Part VI, DA Form 3180
3. Individual transferring from one PRP assignment to another, which requires transfer of personnel and/or medical records: Complete rescreening required. Initiate DA Form 3180.

* Personnel administratively screened for levy will be completely rescreened by gaining certifying official and a new DA Form 3180 will be executed.

Figure 2–1. Screening Requirements

Section V
Continuing Evaluation

2–21. General

a. Certifying officials will ensure that all personnel assigned to PRP positions are subject to a continuing evaluation of their reliability. Certifying officials are responsible for ensuring that all military, civilian, and contractor personnel assigned to PRP positions meet all requirements of continuing evaluation.

b. To ensure that continuing evaluation is effective, certifying officials will establish and maintain close–working

relationships with supporting activities to ensure they are fully aware of their PRP–related responsibilities and that they provide required support.

2–22. Individual and supervisor responsibilities

a. Individuals assigned to PRP duties are responsible for monitoring their own reliability and the reliability of others performing PRP duties. Failure to discharge those responsibilities may cast doubt on an individual's reliability. Individuals must be aware of how problems, concerns, and circumstances may reduce their effectiveness and impair capability or reliability. Individuals will advise their supervisors or certifying official of any factors that could have an adverse impact on their performance, reliability, or safety while performing PRP duties. Individuals will inform support agencies of their active PRP status before treatment or consultation and will inform their supervisor or certifying official when another individual in the PRP appears to be involved in situations that may affect reliability.

b. Supervisors will monitor the reliability of their subordinates and notifying the certifying official of any potentially disqualifying information. An individual whose assignment is subject to the reliability standards in this regulation will be identified to other supervisors so information that raises questions about that individual's judgement or reliability can be reported and acted on without delay.

2–23. Medical treatment

a. Each time a PRP–certified individual visits a government medical treatment facility (including mental health clinic), the CMA must determine reliability effects and notify the certifying official when the medical treatment could impact the individual's reliability or duty performance. The CMA will ensure that all potentially disqualifying information of a medical nature is documented in the individual's health records. The CMA's principal responsibility is to provide the certifying official with sufficient medical information to make a sound decision concerning an individual's suitability to perform PRP duties and whether a change in the individual's PRP status is warranted. When potentially disqualifying information is identified, it will be placed in a sealed envelope, marked "EXCLUSIVE FOR" and provided to the certifying official per local procedures.

(1) When medication is prescribed, notification is required when the medication could affect the patient's physical or mental abilities. Notification is mandatory when narcotics, sedatives, or tranquilizers (mood or mind–altering medications) are prescribed, regardless of anticipated effects.

(2) The CMA will promptly notify the certifying official if an individual's behavior suggests emotional instability, current drug or alcohol abuse, or the need for treatment with narcotics, sedatives, or tranquilizers.

(3) When the CMA has any doubts concerning an individual's reliability, the certifying official must be promptly notified.

b. When a PRP individual receives nonmilitary medical or dental treatment (including TRICARE referrals), the CMA will review and determine the effect of the care on the individual. The CMA will record results of that evaluation in the individual's medical records and notify the certifying official when the medical treatment could impact the individual's reliability or duty performance.

c. Hypnosis. Hypnosis will not be administered to individuals in the PRP without the knowledge of the individual's certifying official. The certifying official will determine, in coordination with the CMA, if any potential for degraded job performance or diminished reliability exists.

2–24. Drug abuse screening/urinalysis

a. Military and DOD civilian employees in the PRP will receive periodic urinalysis testing per AR 600–85. DOD contractor employees in the PRP will undergo periodic testing on a random basis to ensure the deterrent value of testing.

b. Physicians acting as medical review officers for DOD civilian or DOD contractor urine drug testing programs will not contact certifying officials with positive urine drug screening results until the employee has had an opportunity to document the use of prescription drugs and discuss the test results with the physician. On verifying the positive urine drug test result as evidence of unauthorized use, the physician will notify the certifying official. If the physician determines the positive urine drug test is the result of authorized use of prescription drugs, the physician will not notify the certifying official. The physician will counsel the individual to promptly report the use of any prescription medication to the certifying official.

2–25. Personnel security investigations/periodic reinvestigations for PRP purposes

a. All personnel assigned to PRP duties are required to have a PR every 5 years, regardless of when they were last PRP qualified. A new PSI is required when a break in active Federal service or employment exceeds 2 years, or if the certifying official requests a new PSI based on significant derogatory information or allegations.

b. Certifying officials may at any time require a PR or local records check if an individual's reliability is suspect.

c. Individuals requiring a PR will initiate the PR 6 months before expiration and will remain qualified while the PR is being conducted. If the PR is not submitted before expiration, the certifying official will temporarily disqualify the

person from the PRP until the PR is submitted. Once the PR is submitted, the certifying official can return the individual to a fully qualified status.

d. If the assignment also requires a security clearance, the periodic reinvestigation (PR) requirements of AR 380–67 must be met.

e. PRP assignments may be considered consecutive if time intervals between assignments are due to administrative processing delays related to permanent change of station actions or assignment to a position targeted for PRP inclusion (for example, a chemical agent demilitarization facility under construction) where the PRP has not yet been implemented. The 2–year break in service limitation still applies.

Section VI
Temporary and Permanent Removal From PRP Duties

2–26. General

Removal from the PRP can be either temporary (medical restriction or temporary disqualification), permanent (permanent disqualification), or administrative (administrative termination) depending on the particular circumstances. Subsequent sections discuss each of the options for removing an individual from the PRP. General guidelines are listed as follow:

a. The type of disqualification (temporary or permanent) depends on the circumstances, character, and transitory or continuing nature of the cause of the unsuitability or suspected unsuitability.

b. When making a reliability determination, the issue is not an individual's guilt or innocence of some particular offense; rather, the issue is whether the individual will be retained in a PRP position. It is not necessary to complete an investigation, to take disciplinary action (either civil or military), or to complete other personnel actions before the certifying official decides whether to disqualify or retain an individual in the PRP. Determination of an individual's reliability rests with the certifying official.

c. Permanent disqualification from the PRP is neither an adverse personnel action nor the basis for disciplinary action. However, the reason for disqualification may be adverse and warrant action under the Uniform Code of Military Justice or civil law or require other personnel actions (for example separation, suspension, revocation of access to classified information, or reassignment).

d. If PRP certification is a condition of employment/service, and the individual is permanently disqualified from the PRP, and other positions for which the individual is qualified are not available, separation from employment/service may be appropriate.

2–27. Medical restriction

When performance of PRP duties may be temporarily impaired by the use of prescribed medication, a temporary medical condition, or short–term stress, the certifying official will (after consultation with a CMA) restrict the individual from performing those affected PRP duties for up to 30 days. If the condition persists longer than 30 days, the certifying official may review and extend the restriction at 30–day intervals.

a. Medical restriction is used when the problem is of short duration. Medical restriction may be imposed while conducting an investigation or medical evaluation to determine if a situation or incident could have an adverse effect on an individual's suitability and the individual's reliability is not suspect.

b. Medical restriction requires that the certifying official temporarily remove the individual from affected PRP duties, notify the individual and immediate supervisor in writing of the nature and circumstances of the restriction, and resolve the issue promptly. When the temporary condition or situation is resolved, the certifying official will restore the individual to assigned PRP duties. If the condition becomes prolonged or permanent, the certifying official will initiate either temporary or permanent disqualification procedures, as appropriate.

c. Examples of when medical restriction is appropriate include the following:

(1) An individual taking a medically prescribed drug that may impair duty performance.

(2) Emotional disorientation due to family problems or the death or illness of a relative, family member, or close friend.

(3) A physical injury or other condition (including pregnancy) that temporarily impairs the individual's ability to perform assigned PRP duties. Medical restriction may be extended to include both a pregnancy's full term and postpartum recovery period.

d. Medical restriction is not appropriate for personnel who are or may be intoxicated or under the influence of alcohol or illicit drugs.

e. No entry on the DA Form 3180 is required for individuals in a medically restricted status.

2–28. Temporary disqualification

When the basis for medical restriction from assigned PRP duties becomes prolonged, or the certifying official determines that an individual's reliability is suspect, the certifying official will temporarily disqualify the individual from the PRP. Temporary disqualification action is appropriate when the certifying official has information about a

condition or event that could affect an individual's job performance or reliability, and medical restriction, in the opinion of the certifying official, is not appropriate.

a. The certifying official will immediately remove the individual from assigned chemical duties, restrict access, and advise the individual in writing, within 15 working days, of the reason for temporary disqualification. However, the individual will remain under continuing evaluation. The original DA Form 3180, Part VI, will be annotated (pencil entry) to reflect the temporary disqualification.

b. The certifying official will promptly investigate all circumstances that may impact the reliability of an individual. During suspected alcohol or drug abuse, the investigation will include a medical evaluation by the CMA. The certifying official will promptly obtain information required to determine whether to reinstate or permanently disqualify the individual. If reinstated, the certifying official will inform the individual and the custodian of the original DA Form 3180 if appropriate. (The pencil entry in DA Form 3180, part VI will be erased on notification.)

c. Temporarily disqualified military personnel will not be permanently reassigned or separated until either reinstated or permanently disqualified, unless temporary disqualification is the result of a medical condition. In that case, the individual will be administratively terminated before separation or reassignment.

d. Temporary disqualification will not normally exceed 180 days. The certifying official may extend the period of temporary disqualification in 30–day increments when there is not sufficient information to either remove the temporary disqualification and return the individual to PRP duties, or to permanently disqualify the member. Extensions must be documented. After 270 days, HQDA ODCSOPS (DAMO-SSD) approval is required for further extensions.

2–29. Permanent disqualification

When the certifying official determines that an individual does not meet the reliability standards of this chapter, the certifying official will terminate access to chemical agents, remove the individual from chemical duties and permanently disqualify the individual from the PRP. The certifying official will advise the individual in writing, within 15 working days, of the determination, to include the reasons for initiating permanent disqualification procedures and the requirement for review by the reviewing official. This written notification will cite specific circumstances that support the certifying official's decision to disqualify. Except for a physical or mental condition documented in the individual's health record, statements such as "Alcohol abuse," "Drug abuse," "Contemptuous attitude," or "Courts–martial conviction" are inadequate by themselves.

a. The notification letter will—

(1) Provide the rationale for disqualification in sufficient detail so that, if required, a future reviewing official will have adequate information to act on a request for requalification. (DA Form 3180, part VIII will be similarly detailed.)

(2) Advise the individual that the disqualification action is subject to mandatory review by the reviewing official before any permanent entries are made in the individual's records and that he or she will be advised of the outcome of the review.

(3) Inform the individual that a written explanation or rebuttal may be submitted within 5 workdays of receipt of the letter.

(4) Request written acknowledgement of receipt of the letter of notification. If the individual refuses to acknowledge receipt, the certifying official will attach a statement to the notification letter explaining its absence.

b. Pending review of the action, disqualified personnel will not conduct chemical duties.

c. The reviewing official will review each permanent disqualification action to ensure uniform application of the reliability standards specified by this chapter and effective use of personnel, consistent with the purpose of the PRP. The reviewing official may seek additional information or explanations of extenuating circumstances from the certifying official, CMA, personnel officials, and the individual concerned if needed.

(1) The certifying official will forward a copy of the letter of notification, the signed acknowledgement or an explanation for its absence, a written explanation or rebuttal submitted by the individual, and any other pertinent information to the reviewing official within 10 workdays of the disqualification.

(2) The reviewing official will review the case and, within 15 workdays of receipt of the disqualification documents, furnish a written decision to the individual through the certifying official. If the reviewing official approves the disqualification, the certifying official will complete the remaining administrative procedures below. (If the individual has departed the certifying official's organization, the certifying official will forward a reproduced copy of the approval either directly to the individual, or through his or her new chain of command.)

(3) When disqualification is not approved by the reviewing official, no entries will be made in the individual's records. The individual's records will continue to show the individual as PRP certified.

d. Permanent entries concerning the disqualification will not be made on either the DA Form 3180 or in the individual's records before final action by the reviewing official. If the reviewing official approves permanent disqualification of an individual being screened for the PRP, the certifying official will complete Parts V and IX of the original DA Form 3180. If the reviewing official approves disqualification of an individual already in the PRP, the certifying official will complete part IX of the original DA Form 3180. In Item B, reason for permanent disqualification the certifying official will check the appropriate block(s) and provide a brief summary of the rationale for permanent disqualification.

e. Within 10 workdays of receipt of the reviewing official's review of disqualification, the DA Form 3180 will be distributed as follows (for contractor personnel see para 2–33d).

(1) Forward the original, with copies of the letter of notification, the signed acknowledgment or an explanation for its absence, and a copy of the reviewing official's approval, through the supporting personnel administration center to the permanent section of the OMPF or directly to the civilian personnel office (if civil service) for filing in the OPF.

(2) For military personnel, provide one copy of the reviewing official's approval to the custodian of the MPRJ for necessary action and filing.

(3) Provide one copy or other written notification to the custodian of the individual's health and dental records for necessary action.

f. When a reviewing official approves disqualification of military personnel, the certifying official will notify the supporting personnel administration center to submit the appropriate SIDPERS PRPAS transaction per AR 680–29.

g. DA Form 2–1 (Personnel Qualification Record, Part II) of disqualified enlisted personnel will be annotated with the following statement–Disqualified (date) for assignment to chemical PRP positions per AR 50–6 – as prescribed in AR 600–8–104.

h. Remove the DA Form 4515 and DA Form 3180 from the individual's medical records and destroy. Also, remove the DA Label 164 from the personnel records.

i. If the individual is disqualified for medical reasons, the physician will annotate SF 600 or equivalent document with the following or a similar statement – Disqualified (date) for assignment to chemical PRP positions per AR 50–6 – and will annotate the medical reason for permanent disqualification.

j. The servicing civilian personnel office will provide assistance on placement action for a permanently disqualified civilian employee.

k. When the disqualification is based on credible derogatory information that could affect the individual's security clearance, the supporting security manager will be notified for appropriate action per AR 380–67.

2–30. Administrative termination

a. Administrative termination—

(1) Occurs when an individual transfers from a duty position requiring PRP certification to one not requiring PRP certification.

(2) Establishes the date an individual was removed from a PRP position for reasons other than permanent disqualification.

(3) Eliminates the requirement for continuing evaluation.

b. Certifying officials will administratively terminate personnel in PRP positions when individuals are permanently removed from chemical duties within their organization. That is, unless reassignment instructions indicate the individual is projected for assignment to a PRP position in the gaining organization.

c. The certifying official will notify supporting medical and dental facilities and the personnel officer in writing that the individual is no longer in the PRP and that the individual no longer requires continuing evaluation.

d. The following actions will be taken:

(1) Complete DA Form 3180, part VIII. If the original DA Form 3180 is maintained at the local installation, transfer it to the personnel office and file in the MPRJ, OPF, or contractor's personnel files. Remove DA Label 164 from personnel files.

(2) Remove DA Form 4515 from the medical and dental records and destroy copies of the DA Form 3180 filed in these records.

(3) Submit a SIDPERS PRPAS transaction per AR 680–29 for all soldiers administratively terminated from the PRP.

Section VII
Requalification

2–31. Requalification of disqualified personnel

a. Individuals permanently disqualified (except those disqualified per para 2–9c(1), 2–9c(3), and 2–9c(4)) may be requalified on approval of a request for requalification by the reviewing official of the organization to which the individual is currently assigned. The reviewing official can take such action based on substantive evidence that the cause for permanent disqualification no longer exists.

b. The individual may submit a request for requalification to his/her immediate supervisor or COR as appropriate. This request will explain the circumstances leading to the disqualification, basis for disqualification, and the action taken to correct or eliminate the reasons for disqualification. Should the request be disapproved, the supervisor or COR will return it to the individual with the rationale for disapproval. If the supervisor or COR decides to recommend requalification, the individual will be screened and evaluated (completion of Parts I through IV, DA Form 3180). If the

individual is found suitable for the PRP, the COR/supervisor will forward the request for requalification and the DA Form 3180 to the reviewing official.

c. If the reviewing official denies the requalification, destroy the new DA Form 3180 and return the request for requalification to the individual. Retain the DA Form 3180 reflecting permanent disqualification and associated correspondence.

d. If the individual is no longer assigned/employed in a command with a chemical PRP, forward request for requalification through command channels to, ODCSOPS, ATTN: DAMO–SSD, for resolution.

2–32. Action on requalification

a. Approval of requalification does not require assignment or reassignment to a PRP position; however, requalified personnel are eligible for certification into such positions.

b. Remove the DA Form 3180 that reflected the permanent disqualification and associated correspondence from the personnel records, destroy, and replace by the new one. Additionally, DA Form 2–1 for enlisted personnel and SF 600 (if the individual was disqualified for medical reasons) will be annotated with the following statement – "Requalified (date) for assignment to a chemical PRP position per AR 50–6."

(1) If the individual is to be assigned to a PRP position, the certifying official will complete the procedures outlined in paragraph 2–17.

(2) Individuals NOT assigned to PRP positions will be administratively terminated (para 2–30).

c. The original of the approved request/recommendation for requalification (less the DA Form 3180) will be endorsed to the individual. Copies will be forwarded to the custodian of the OMPF, OPF, or contractor as appropriate.

Section VIII
Personnel Reliability Program for Contractor Employees

2–33. Personnel reliability program (PRP) – COCO and GOCO facilities

In addition to previous guidance, the following additional information applies to GOCO and COCO facilities.

a. Certifying official. The Army COR designated by the contracting officer will be the certifying official for DOD contractor employees authorized to perform chemical duties. The contracting officer may authorize delegation of certifying official duties to subordinate military or Army civilian personnel. The contracting officer's delegation letter to the COR must stipulate such delegation. Certifying officials will ensure that contracts require contractor employees performing PRP duties in positions subject to this regulation to meet the PRP reliability standards outlined in this chapter and in approved surety contract clauses. Specifically, contractors will—

(1) Inform managerial, supervisory, medical, and other contract personnel of the purposes, standards, procedures, and responsibilities required for implementing the PRP.

(2) Inform and instruct each employee assigned chemical duties of the significance of assignment, importance of reliable performance, PRP standards, safety and security considerations, and continuing evaluation requirements for self–reporting and peer review of factors and situations that could affect job performance or reliability. The contractor will foster a positive attitude toward both the PRP and chemical duties among PRP employees and will ensure that each PRP employee understands that maintaining PRP standards is a condition of continued employment in the chemical agent facility.

(3) Ensure that each employee to be assigned to a PRP position is subjected to a PSI, medical record evaluation, substance abuse testing, personal interview, and continuing evaluation under the reliability standards of the PRP outlined in this chapter.

(4) Ensure that each employee assigned to a PRP position has received the formal course of instruction and/or experience applicable to the chemical duties assigned and is proficient in those duties.

(5) Provide the certifying official with results of PSIs, medical record evaluations, and substance abuse testing of any contractor employee assigned, or proposed to be assigned to a PRP position. In addition, the contractor must report immediately any other information about an employee relevant to maintaining PRP reliability standards.

(6) Provide for the continuing evaluation of employees assigned to PRP positions by contractor supervisory personnel.

(7) Immediately remove an employee from a PRP position on notification by the certifying official that the employee has been disqualified and notify the certifying official in writing within 15 days of the removal action. Disqualification from the PRP requires that the following:

(a) The employee will be instructed to cease performance of chemical duties.

(b) The employee will be prevented from entering any facility that would allow the individual access to areas containing chemical agent and the employee's entry credential will be confiscated or removed from the entry control system.

(c) The employee will be removed from a PRP position on determination by the certifying official that the employee no longer meets PRP reliability standards and has been permanently disqualified. This action will be made a matter of permanent record.

(8) Provide to the Defense Security Service (DSS), ATTN: SO831, P.O. Box 2499, Columbus, OH 43216–5006, a list of all personnel in the PRP that have security clearances granted by DSS. Update lists as needed. Lists will include the full name and SSN of each employee; name and address of the employing contractor facility; and the title, address, and DSN telephone number of the Army certifying official for the contract.

b. PRP administration official.

(1) At COCO and GOCO facilities, the certifying official may designate one or more senior supervisory contractor employees to assist in administering day–to–day certifying official duties. This official will be nominated by the contractor and approved by the COR. This individual will be enrolled in the PRP.

(2) The PRP administration official may perform all duties normally associated with the certifying official except for the decision–making functions of determining PRP suitability and disqualifying personnel from the PRP. The contractor may, however, administratively remove employees from PRP duties as needed. The certifying official must complete DA Form 3180, parts V and IX. The PRP administration official may be delegated the authority to sign part VI.

(3) The PRP administration official may be delegated the authority to medically restrict an individual from performing chemical duties. However, in cases where the individual does not wish medical authorities to forward such personal information to the PRP administration official, the certifying official must perform the medical restriction function.

(4) The PRP administration official may be authorized to authenticate the CDPR. (Also see para 2–5c.)

c. Personnel security investigations (PSI).

(1) The contracting office will submit PSI requests for all contractor employees considered for assignment to PRP positions. The contracting office will verify citizenship status before processing the PSI request.

(2) For contractor employees requiring a security clearance, appropriate submit industrial security clearance forms through the contracting office to DSS for security clearance adjudication. The contract will require the contractor to provide the contracting office with any information that would be sent to DSS if the employee were cleared under the DOD Industrial Security Program. The contractor will send NAC requests thought the contracting office using SF 86 (Questionnaire for National Security Positions), and FBI Form 258 (Applicant Fingerprint Card). The SF 85P must be prepared using the subject version of the Electronic Personnel Security Questionnaire (EPSQ) System.

(3) For contractor employees not requiring a security clearance, the contractor will send NAC requests to the contracting office using SF 85P (Questionaire for Public Trust Positions), FBI Form 258 (Applicant Fingerprint Card), for submission to DSS. The SF 86 must be prepared using the subject version of the Electronic Personnel Security Questionnaire (EPSQ) System.

(4) The contracting office will establish processing procedures with DSS and ensure that any reports of investigation are returned to the contracting office. The certifying official will adjudicate the PSI for PRP purposes. Under no circumstances will the contracting office disclose to the contractor any information about a contractor employee developed in the course of official investigations. In the event the PSI is unfavorable for PRP purposes, the contractor will simply be told that the employee is unsuitable for the PRP. Permanent disqualification procedures will then be initiated.

d. Disqualification procedures.

(1) When the certifying official determines that a contractor PRP employee is not suitable for the PRP, the certifying official will initiate permanent disqualification procedures per paragraph 2–29. If the disqualification is based solely on information developed from the PSI, the reasons for disqualification will not be disclosed to the contractor, to include the PRP administration official. The certifying official may communicate or correspond directly with the individual being disqualified. The permanent disqualification process may be completed through certified mail with return receipt requested. The certifying official may waive normal suspense's for notification and review. In all cases, however, the disqualification process must be accomplished promptly.

(2) Distribution of the completed DA Form 3180 will be as follows:

(a) The certifying official will keep the original, with copies of the written notification and the signed acknowledgment, plus a copy of the final action by the reviewing official.

(b) One copy will go to the contractor. The contractor will send copies, or memos, to appropriate personnel and medical offices for necessary action and to clear files. In the event disqualification was a government action resulting from adverse information developed during the PSI, do not provide copies of the DA Form 3180 to the contractor. Instead, give the contractor written notice that the individual is disqualified because of an unfavorable PSI, without specifying the reasons.

(3) If the individual has been cleared under the DOD Industrial Security Program and was disqualified for acts reflecting adversely on loyalty, character, integrity, or discretion; and the acts were clearly not consistent with National interest (as outlined in DOD 5220.22–M, para 6–B), the certifying official (or contractor) must also report this information to DSS.

Section IX
Annual Personnel Reliability Program (PRP) Status Report (RCS DDP–C3I (A) 1403)

2–34. Information requirements

Each installation/MACOM having personnel in the chemical PRP will prepare DA Form 7422 (Annual Resonnel Reliability Program (PRP Status Report) annually, as of 31 December of each year. Send this report to Director, USANCA, ATTN: ATNA–OP, 7150 Heller Loop, Suite 101, Springfield, VA 22150–3198, to arrive annually no later than 1 February.

2–35. Preparation guidance

a. Block 1. List the installation or MACOM submitting the report.

b. Block 2. Indicate the year for which the information is being reported.

c. Block 3. Indicate the type of report by checking the appropriate block. Prepare and report chemical and nuclear PRP reports separately.

d. Block 4. List the total number of personnel at each installation/MACOM actually assigned to PRP positions as of 31 December. All chemical positions will be listed as controlled positions and will be broken out separately for military, civil service employees, and contractor employees.

e. Block 5. List the total number of personnel at each installation/MACOM permanently disqualified while assigned to PRP positions during the calendar year. All chemical positions will be broken out separately for military, civil service employees, and contractor employees.

f. Block 6 a through g. List the installation/MACOM permanent disqualifications categorized by primary reason for disqualification using the disqualifying factors listed. The totals calculate automatically if a forms generator is used.

g. Block 7. Include any comments here noting trends or other relevant factors to assist future historical analysis.

h. A sample format for reporting the information is found in AR 50–5.

Chapter 3
Managing Chemical Agent Contracts

3–1. General

a. This chapter provides guidance for managing chemical agent contracts at government–owned, contractor–operated (GOCO), and contractor–owned, contractor–operated (COCO) facilities to include academic institutions and demilitarization facilities.

b. Contractors will meet or exceed Army contract requirements for safety. All contractors' facilities that handle chemical agents, RDTE material, and/or dilute agents will, as a minimum, meet OSHA requirements.

3–2. Policy

a. Heads of contracting agencies will ensure that this chapter, including certification, support, and oversight of COCO/GOCO facilities having custody of chemical agents, are implemented by contractually binding agreements.

b. Army policy limits involvement with chemical agents to DOD military and civilian personnel. However, in cases where such limitation is not in the best interest of the Army, MACOM commanders may authorize use of contractors to perform chemical duties. A MACOM may delegate this authority no lower than major subordinate command level.

c. Army–furnished chemical agents may be used to support contract work for other services and DOD agencies. Any use of chemical agents, regardless of how acquired, at Army supported contract facilities for non–DOD work requires approval from HQDA, ODCSOPS, ATTN: DAMO–SSD.

d. A COR will be designated to technically monitor the administration of chemical agent contracts.

e. The total chemical agent quantity, to include neat agent equivalent of diluted materials, maintained at a COCO facility will not exceed the aggregate total of 4 liters. Requests for exception to exceed the 4–liter limit must include detailed justification. Forward requests to HQDA, ODCSOPS, ATTN: DAMO–SSD.

f. Army retains ownership of all chemical agents furnished, purchased, or synthesized at government expense, unless transfer is approved by the Secretary of Defense.

g. The Chemical Weapons Convention governs the amount of chemical agents synthesized at COCO facilities. The COR must approve the synthesis of chemical agents. COCO facilities will account for synthesized chemical agents using the same procedures as those required for government–furnished chemical agents.

h. The Army possesses the designated SSSF and PPPF, which are the only facilities authorized to produce Schedule 1 materials for protective purposes. Contractors will not synthesize Schedule 1 chemicals for protective purposes, but will acquire them from the SSSF or, under extraordinary circumstances, the PPPF.

i. For bailment contractors which are required to produce Schedule 1 chemicals for permitted purposes other than

protective, said production will be subjected to all applicable Department of Commerce regulations, including those for declaration, reporting and verification under the CWC. DOC will host their on–site inspections.

3–3. COCO RDA/academic facilities

a. AMC is the lead command for the certification, support, and oversight of COCO facilities used for non–medical chemical defense RDA efforts.

b. MEDCOM is the lead agency for certification, support, and oversight of facilities used for medical chemical defense RDA efforts.

c. AMC and MEDCOM will use the MOU/memorandum of agreement process to jointly develop and use standard surety clauses in the areas of personnel reliability, security, safety, and accountability of chemical agents used in RDA. Standards will share common technical terminology and will include technical procedures as required. AMC is the lead command for the development and maintenance of these standard clauses. HQDA, ODCSOPS (DAMO–SSD) will adjudicate and resolve any disagreements between MACOMs during the development and maintenance of these performance standards.

d. Contracting officers will ensure that Army standard surety clauses and requirements are made contractually binding on all contractors required to possess or use chemical agents at a COCO facility. Until a COCO facility is certified and a contract is in force, chemical agents will not be furnished to the facility; nor, will the facility synthesize or obtain chemical agent elsewhere for use on supported contracts. The Army does not control or oversee contracts performed outside the United States, its possessions, or its territories, unless they involve chemical agents provided by the U.S. Army.

e. MACOMs will ensure that contractor facilities are inspected and certified to safely and securely use and store chemical agents before transferring chemical agent into custody of the contractor.

3–4. Semiannual reporting of COCO RDA/academic facilities

a. Lead commands will provide semiannual reports of all supported organizations (including government, industry, and academic facilities) requiring the use of chemical agent in contractor certified facilities. Reports will include, as a minimum, the following information:

(1) Name of contractor and contract number.

(2) Name(s) of principal investigators.

(3) Chemical names(s), including structural formula and Chemical Abstracts Service Registry Number (RN), if assigned.

(4) Quantities of each chemical produced, received, transferred, and on hand at the end of each month.

(5) Highest quantity of each chemical agent on hand during period.

(6) Quantity of each chemical consumed.

(7) Purpose of consumption/use.

(8) Duration of contract.

(9) Date of most recent survey of the contractor's facility and surveying agency.

(10) Chemical name, structure formula, CAS Registry Number, quantity and purpose for each Schedule 1 chemical planned to be acquired, consumed, or stored for the upcoming calendar year (1 August report only)

b. Semiannual reports will include listings of other service or agency contracts supported with chemical agent. Contract numbers and types of chemical agents involved will be specified.

c. Semiannual reports will include known cases of certification being denied or revoked with names of contractors and reasons for denial or revocation.

d. The reports have cutoff dates of 31 December (COB) and 30 June (COB) with arrival on 1 February and 1 August. Send copies to HQDA, ODCSOPS, ATTN: DAMO–SSD, Washington, DC 20310–0400; Director, USANCA ATTN: ATNA–OP, 7150 Heller Loop, Suite 101, Springfield, VA 22150–3198; and to Commander, SBCCOM, ATTN: AMSSB–RCB–C, E5183 Blackhawk Road, APG, MD 21010–5424.

3–5. Chemical event reporting at COCO and GOCO facilities

a. Contractors will report all chemical events to the COR. The contracting agency will report all chemical events as specified in chapter 11. If located on a military reservation, contractors will also report all chemical events to the installation or host commander, who in turn will forward such reports as specified in chapter 11 directly to HQDA, ODCSOPS.

b. Contractors will notify local management/response officials per CAIRA plans approved by the COR.

3–6. Surety program evaluation requirements

a. Commands with GOCO demilitarization and COCO RDA chemical agent contracting responsibility will establish surety oversight programs.

b. CORs performing certifying official duties will conduct periodic contractor compliance visits at intervals not to exceed 24 months. These visits may be unannounced. Functional area experts may accompany the COR to assist in

conducting compliance inspections. The visits will focus on compliance with contract requirements and at a minimum, will review the following areas:

(1) PRP management.

(2) Safety.

(3) Physical security.

(4) CAIRA planning and readiness.

(5) Agent accountability and record keeping

Chapter 4
Acquisition of Chemical Agents (Schedule 1 Chemicals)

4–1. General

DOD organizations will not produce (synthesize) or acquire, in any quantity, any chemical material listed in table B–1, without the approval of DAMO–SSD and the concurrence of the DOD Accountability Manager for Schedule 1 Chemicals. The only exception will be for chemicals acquired from the designated SSSF or PPPF.

4–2. Single Small Scale Facility (SSSF)

The Chemical Transfer Facility, Aberdeen Proving Grounds, MD is designated the SSSF. This facility has been declared under the CWC as the SSSF and will comply will all applicable provisions and obligations of the CWC.

4–3. Protective Purposes Production Facility (PPPF)

The Chemical Defense Training Facility, Fort Leonard Wood, MO is designated the PPPF. This facility has been declared under the CWC as the PPPF and will comply will all applicable provisions and obligations of the CWC.

4–4. Other DOD Facilities

Production or synthesis of Schedule 1 chemicals may be carried out for research, medical, or pharmaceutical purposes outside a SSSF in aggregate quantities not to exceed 10 kg per year per facility.

a. Requests to produce Schedule 1 chemicals under this provision will be submitted to HQDA, ODCSOPS, DAMO–SSD no later than 12 months before planned production. The request will include the following information:

(1) The precise location(s) where production will take place, including building and room numbers, mailing address(s), and Global Positioning System (GPS) coordinates if available.

(2) A detailed technical description of the facility, or its relevant parts.

(3) For each Schedule 1 chemical to be produced, include the following:

(a) The chemical name, structural formula, and Chemical Abstracts Service registry number, if assigned.

(b) The quantity planned to be produced.

(c) The name and quantity of precursors listed in Schedules 1, 2, and 3 of the CWC, used for production.

(d) The quantity to be consumed at the facility and the purpose of consumption.

(e) The quantity to be transferred to other facilities within the United States, including the expected quantity, recipient and purpose of the transfer.

(f) The maximum quantity planned to be stored at any given time.

b. Facilities granted approval to produce more than 100 grams of Schedule 1 chemicals per year will become subject to the provisions of the CWC, including those for declaration, annual reporting, and verification (such as inspections). Each facility will ensure it is prepared to comply with the requirements and obligations of the CWC, according to the Army CWC Implementation and Compliance Plan.

4–5. Request for non-DOD agencies

Requests for research chemical agents by non-DOD government agencies or their contractors will be forwarded to HQDA, ODCSOPS, ATTN: DAMO-SSD, Washington, DC 20310–0400.

Chapter 5
Accountability

5–1. General

a. This chapter provides guidance for accounting of chemical agents in laboratory use and during chemical agent demilitarization operations. The chapter does not apply to chemical agents in depot/depot activities where formal

accountability records are maintained per AR 735–5 and National Inventory Control Point (NICP) guidance. Physical inventories as prescribed in AR 710–2 and AR 740–26 ensure the accuracy of accountable records.

b. Each storage location will forward an annual inventory report of all chemical agents stored by type and quantity to USANCA, ATTN: ATNA–OP, 7150 Heller Loop, Suite 101, Springfield, VA, 22150–3198, for inclusion in the chemical site database.

5–2. Chemical agent accountability in laboratories

a. Commanders/directors will—

(1) Appoint an accountable officer to oversee the implementation of this regulation. This incudes the drafting of a site–specific chemical agent accountability, standing operation procedure/internal operation procedure (SOP/IOP) by the appointed primary custodian.

(2) Ensure chemical agents are maintained under a system of records that allows a continuous audit of custody. This system consists of both formal accountable records (such as custodial cards – recording transactions, custodial inventory reports – submitted to accountable officer, etc.). It also includes supporting custodial records (DD Form 1911 Materiel Courier Receipt), destruction certificates, etc.) that provide an audit trail from chemical agent receipt, to use, destruction, or transfer.

(3) Forward a semiannual chemical agent inventory report to the SBCCOM RDTE Chemical Agent Accountable Officer, who also serves as the DOD Accountability Officer for Schedule 1 Chemicals, as of COB 31 December ad 30 June. This report must arrive by 1 February and 1 August, to facilitate a National, centralized data management record.

(4) The semiannual submission on 1 February for the entire previous year, and on 1 August for the current calendar year (through 30 June) will include, for each Schedule 1 chemical produces, acquired, consumed or stored, the following information:

(a) Chemical name.

(b) Structural formula.

(c) CAS RN, if assigned.

(d) Production methods employed.

(e) Quantity produced.

(f) Name and quantity of precursors used.

(g) Quantity consumed.

(h) Purpose of consumption (research, medical, pharmaceutical, or protective).

(i) Quantity received from other facilities.

(j) Maximum quantity stored at any time.

(k) Quantity stored at the end of the year.

(5) The semiannual submission on 1 August, for the coming calendar year, will include, for each Schedule 1 chemical anticipated to be produced, consumed, or stored, the following information:

(a) Chemical name.

(b) Structural formula.

(c) CAS RN, if assigned.

(d) Quantity anticipated to be produced.

(e) Purpose of production (research, medical, pharmaceutical, or protective).

b. The site–specific chemical agent accountability SOP/IOP will include the following:

(1) Current authorized chemical agent requesters and receivers.

(2) Chemical agent suppliers.

(3) Authorized contract type(s) that are permitted.

(4) Contract approval authority.

(5) Related/applicable accountability forms.

(6) Procedures to stay within the allowable aggregated quantity.

c. Accountable and custodial records consist of a combination of inventories, shipping and transfer documents, location records, destruction certificates, and other documents as directed by the accountable officer. Official laboratory notebooks may be used as accountability records to the extent that they provide documentation of concentration, quantity, location, and use after the chemical agent is issued to the investigator or user.

d. Custodians have property responsibility under AR 735–5 paragraph 2–8d. They will prepare and maintain custodial records as directed by the accountable officer and will submit copies of their procedures to the accountable officer for review. Custodians will forward copies of inventories, completed transfer documents, and destruction certificates to the accountable officer.

e. Accountability will be maintained by line–item entry. A line item is a single primary container (a vessel, ampoule, cylinder, or other receptacle) that contains accountable chemical agent. The container will be labeled clearly to show its identity, the type of chemical agent, the original quantity of material, and concentration (if other than neat

agent). Where more than one substantially identical primary container is under the control of a single custodian, they may be aggregated as a single line item.

f. A 100% physical inventory by line item will be conducted at least semiannually. The inventory will show the line item description, location, name, organization and signature of the custodian. Accountable officers may prescribe additional inventories that permit verification by inspecting the seals as secondary or tertiary containers and their reconciliation with custodial records.

g. Quantities will be measured in the smallest practical unit of weight or volume. The accountable officer will prescribe this unit of measure to custodians and users. It will be based on the task to be performed and the precision of measuring devices.

h. The accountable officer will establish maximum amounts that may be accounted for without the need for causative research. If discrepancies exceed this amount, the custodian will conduct causative research and provide the results to the accountable officer. For all inventory discrepancies, the accountable officer or, if delegated by the accountable officer, the custodial officer will prepare an Inventory Adjustment Report and submit it to the approving authority per AR 735–5, chapter 14. The accountable officer will also notify the local surety officer to determine whether a report is required per AR 385–40 and chapter 11 of this regulation. Technical or collateral investigations will be conducted as directed by the commander or director who appointed the accountable officer.

i. RDTE solutions diluted below concentrations established in table 6–1 will not be accountable under or controlled by this regulation except as specifically stated. However, positive controls will be established to ensure proper handling and treatment of these solutions.

j. Non–surety laboratory facilities will outline required procedures in their chemical hygiene plan or SOP/IOP in the event RDTE dilute solutions exceed the concentrations listed in table 6–1.

k. All laboratory facilities that handle chemical agents, RDTE chemical material, and/or dilute gents will, at a minimum, meet OSHA requirements.

5–3. Appointment

a. Accountable officers and custodians will be designated in writing.

b. Contractors will appoint contractor custodians, authorized in writing to request and receive chemical agents, and submit their names to the DOD accountable officer. This requirement will be a contractual obligation.

5–4. Chemical agent accountability during disposal operations

a. Accountability during disposal operations consists of chain–of–custody documents prescribed by the NICP Accountable Property Office (APO) and generated from the Chemical Accountability Management Information Network (CAMIN), the DOD system for formal accountability of the Toxic Chemical Munitions and Bulk Agent (TCM/BA) wholesale materiel. All transactions affecting accountability of the TCA/BA wholesale materiel will be processed in the CAMIN system. The basis for agent fill for stockpile items is the theoretical fill for munitions and the record net weight for bulk agent shown in CAMIN as modified by the actual measured amount removed during the chemical agent demilitarization process and the documenting of specific differences. The basis of fill for non–stockpile items will be the measured amount of chemical agent removed during the disposal operation where possible. Otherwise, probable fills based on historical information will be used.

b. During disposal operations, the host storage custodian transfers chemical agents and munitions from the storage account to the demilitarization account (DA Form 4508 (Ammunition Transfer Record)) before physically transferring the chemical agents and munitions to the disposal activity. The disposal activity operating maintenance contractor (OMC) custodian accepts formal responsibility (DA Form 4508) from the host storage custodian on delivery of chemical agents or munitions at the demilitarization facility (see AR 200–1). The OMC will maintain accountability and associated records throughout the demilitarization process. The disposal activity will use measuring devices designed and built into the demilitarization facility to determine and record the actual amount of chemical agent removed from the munitions.

(1) Once the munitions or bulk agents are demilitarized per DOD 4160.21–M–1, the Program Manger for Chemical Demilitarization will ensure that the OMC custodian prepares and forwards a destruction certificate memorandum (DCM) through CAMIN to the host storage custodian. The DCM will be signed by the OMC and by a qualified government representative. For bulk agent, the amount of agent drained will be recorded in the "Drained Agent" field of the DCM. On receipt, the host storage custodian will verify the accuracy and post the DCM to CAMIN, which drops the bulk agent or munitions from the NICP accountable record.

(2) In addition, the disposal activity measures and records quantities of drained chemical agent during disposal operations through measuring devices designed and integrated into the demilitarization facility. The disposal activity will provide a written report to the NICP at the end of each munitions campaign indicating the amount of agent drained, processed, and stored. At the conclusion of each campaign, demilitarization records will be reconciled. Differences between the munition agent drained and the amount of chemical agent processed will be subject to causative research and/or investigation if the aggregate discrepancy exceeds 5 percent of the total quantity of agent processed.

(3) The combination of the following serve as the NICP basis to remove chemical agents from the ammunition accounts records.

(a) Chemical agent report of destruction.

(b) Certificate of destruction for the munition body/agent container.

(c) Storage activity custodial officers reports of transfer of accountability/responsibility.

(4) The NICP will initiate investigations for any accountability, discrepancies, or deviations.

c. Each instance of loss of integrity of the demilitarization facility's chemical agent transfer and holding system will be investigated and documented. A report of each occurrence and investigations will accompany the disposal activity report to the NICP accountable officer.

d. Investigative reports of the loss of accountability of chemical agents will be furnished to HQDA, ODCSOPS, ATTN: DAMO–SSD, 400 Army Pentagon, Washington, DC 20310–0400. In addition, a chemical event report will be submitted per chapter 11 at the time of discovery of the loss.

Chapter 6
Research Chemical Agents

6–1. General

This chapter provides special guidance for research chemical agents. Guidance varies based on concentration and quantity of chemical agent. In general, larger quantities and greater concentrations of research chemical agents require more stringent reliability, safety, security, and accountability controls than small quantities of neat research chemical agents, RDTE dilute solutions, and experimental chemical agents.

6–2. PRP for small quantities of research chemical agents

a. The following levels of research chemical agents do not require establishment of a PRP:

(1) RDTE dilute solutions in concentrations and quantities not exceeding levels listed in table 6–1.

(2) Neat chemical agents in quantities not exceeding threshold levels in table 6–2.

(3) Experimental chemical agents in aggregate quantities not exceeding one liter.

b. For quantities of RDTE dilute solution in concentrations greater than those specified in table 6–1, neat agents in excess of table 6–2, and/or experimental agents in excess of 1 liter, a MACOM developed PRP may be implemented in lieu of the PRP directed by chapter 2. At a minimum, this program will include the following actions:

(1) Pre–employment screening.

(2) Periodic urinalysis testing. Positions designated for the MACOM PRP are considered testing designated positions and require urinalysis testing per AR 600–85 on the same basis as positions designated for the full PRP.

(3) A personnel security investigation in the form of a NAC/ENTNAC or NACICC as applicable.

(4) Continuing evaluation using the reliability standards specified in chapter 2.

c. The total aggregate quantity of research chemical agents at facilities governed by the MACOM PRP will not exceed 4 liters neat equivalent.

d. This chapter does not apply if during operations concentrations and quantities increase above threshold levels. For example:

(1) By reducing the solvent content of dilute solutions such that the concentration exceeds the maximum concentrations prescribed in table 6–1.

(2) By opening more than one primary container within any given engineering control such that the sum total amount exceeds the thresholds prescribed in table 6–2.

(3) By pooling fractions of chemical agents such that the sum total exceeds the prescribed threshold limits.

e. The provisions of the PRP outlined in chapter 2 apply to the storage and handling of research chemical agents in excess of 4 liters neat equivalent aggregate quantity at the facility.

f. Table 6–3 summarizes the above policies on establishing a PRP for the various categories of research chemical agents.

6–3. Safety

a. Safety procedures and guidance for the use of RDTE dilute solutions and neat research chemical agents are outlined in AR 385–61 and DA Pam 385–61. DA Pam 385–61 applies to experimental chemical agents.

b. The two–person rule will be observed during handling and use of RDTE solutions and neat research chemical agent above the threshold levels in tables 6–1 and 6–2 and for all experimental chemical agents in excess of 1 ml.

c. When safety standards in Army publications conflict with a legal standard such as the Occupational Safety and Health Act, or provide a lower degree of protection, the legal standard will apply. When the Army standards are equal or exceed such requirements in providing workplace safety, the Army requirements will apply.

Table 6–1
RDTE Dilute Solutions

AGENT[1]	MAXIMUM TOTAL QUANTITY[2]	MAXIMUM CONCENTRATION
GA, GB, GD, GF	20 mg	2.0 mg/ml
VX	10 mg	1.0 mg/ml
H, HD, HQ, HT, Q, T	100 mg	10.0 mg/ml
L, HL	50 mg	5.0 mg/ml

Notes:
[1] The common name and chemical name of unclassified agents are as follows:
a. GA–Tabun–Ethyl N, N–dimethylphosphoramidocyanidate.
b. GB–Sarin–Isopropyl methylphosphonofluridate.
c. GD–Soman–Pinacolyl methylphosphonofluridate.
d. GF–Cyclohexyl methylphosphonofluridate.
e. H–Levinstein Mustard–70 percent Bis–dichloroethyl sulfide, 30 percent Polysulfides.
f. HD–Distilled Mustard–Bis–dichloroethyl sulfide.
g. HL–Lewisite Mustard–mixture of Bis–dichloroethyl sulfide and Dichloro (2–chlorovinyl) arsine.
h. HQ–52.5 percent Bis–dichloroethyl sulfide, 25 percent Bis (B–chloroethylthio) ethane and 22.5 percent polysulfides.
i. HT–60 percent Bis–dichloroethyl sulfide, 40 percent Bis (2–chloroethylthio ethyl) ether.
j. L–Lewisite–Dichloro (2–chlorovinyl) arsine.
k. Q–Sesqui–Mustard–Bis (B–chloroethylthio) ethane.
l. T–Bis (2–chloroethylthio ethyl) ether.
m. VX–O–ethyl S–(2–diisopropylaminoethyl) methylphosphonothiolate.
[2] Maximum amount of agent in the solution for each primary container, not to exceed the concentration indicated.
[3] The complete list of chemical agents is located at Appendix B.

Table 6–2
Surety Threshold Levels (ml) of Neat Research Chemical Agents

HD	L	VX	GA, GB, GD, GF
25	25	1	10.0[2]

Notes:
[1] All quantities are expressed in milliliters.
[2] Aggregate total for 'G' series agents in 1 ml primary containers.
[3] Intermediate serial dilutions produced when converting non-surety levels of neat research chemical agent (Table 6-2) to non-surety levels of RDTE dilute solution (Table 6-1) will be considered non-surety work providing the intermediate dilutions are not stored overnight.

Table 6–3
Research Chemical Agent PRP Guidelines

	No PRP	MACOM PRP	FULL PRP
Experimental Agents*	Amounts equal to or less than 1 Liter	Between 'No PRP' limits and total aggregate quantity of 4 liters neat equivalent	Total aggregate quantity greater than 4 liters neat equivalent
Neat Agents	Amounts equal to or less than Table 6-2		
Dilute Agents	Concentrations equal to or less than Table 6-1		

Notes:
* This category is volume constrained due to lack of toxicity data.

6–4. Security

a. AR 190–59 prescribes security requirements for Category III research chemical agents (described in appen B, para B–2).

b. MACOMs will establish security requirements for quantities of chemical agents that are less than threshold levels established in table 6–2.

Chapter 7
Transportation of Chemical Agents

7–1. General

This chapter establishes policies and procedures for transporting chemical agents in all areas within United States jurisdiction. HQDA ODCSOPS (DAMO–SSD), will approve all other moves. Movement of any chemical agents located outside United States jurisdiction will conform to this regulation as modified by any applicable host nation or international law requirements.

7–2. Authority for movement

Under 50 USC 1517, movement of chemical agents is authorized for the following:

a. Necessary movement associated with the immediate removal and/or disposal of chemical agents in emergency situations, when compliance (50 USC 1511–1512, such as notification, review by Surgeon General) would clearly endanger the health or safety of any person. (See AR 75–15.)

b. Shipment of RDTE dilute solutions or neat research chemical agents when used to support chemical defensive, demilitarization, disposal, surveillance, environmental monitoring, or intelligence programs.

c. Use at training facilities for scheduled training purposes only.

d. Transportation within the confines of a military installation as necessary.

7–3. Chemical agents movement

Movements involving chemical agents must comply with local, State, and Federal laws, including 50 USC 1512, 49 CFR, Parts 171–180, AR 200–2, DOD 4500.9–R, and with the notification requirements of the Chemical Weapons Convention.

a. Safety procedures for movement within the United States will provide a level of protection equal to or greater than that required by Department of Transportation regulations.

b. HQDA ODCSOPS (DAMO–SSD) must approve any movement of Category I and II chemical agents to or from an installation or on public highways. MACOM(s) of the shipping and receiving agencies will plan and coordinate Category I and II chemical agent movements.

c. HQDA ODCSOPS (DAMO–SSD) must approve any movement of Category III RDTE chemical agents in excess of 4 liters neat equivalent. MACOMs will approve the movement of quantities of 4 liters neat equivalent or less. All requests will include movement plans and sufficient justification for the proposed move.

d. Controls and procedures for the movement of chemical agents will be established and implemented by the commanders concerned. For off–post movements of chemical agents, movement plans will be developed (except as indicated for emergencies in AR 75–15, para 3–7). As a minimum, movement plans will include provisions for safety, security, and emergency actions.

e. RDTE dilute solutions (see table 6–1) not to exceed one liter and neat research chemical agents, not to exceed the amounts listed in table 6–2, may be shipped, in signature secure mode, via qualified hazardous material carrier using procedures that will ensure full accountability and control. Chemical agents will be packaged and shipped per specifications of applicable DOT regulations (49 CFR) regarding packaging and labeling. Movement plans are not required for these moves.

f. Off–post chemical agent movements exceeding the amounts specified in tables 6–1 and 6–2 will be accompanied by at least two TEU personnel.

g. On–post movement of chemical will be accompanied by at least two PRP certified personnel. Escort training is not required when movement is within a building. Local commanders will develop a standing operating procedures movement plan, which addresses the routine daily movements between respective limited areas, to ensure adequate security is provided for all on–post movements of chemical agents. Local commanders will develop training standards for personnel involved in routine on–post movements of chemical agents using paragraph 7–11b as a guide.

h. The preferred mode for moving chemical agents is military aircraft. For short ground moves, movement by government or contractor–owned vehicles is preferred. Requests to transport chemical agents by other modes of transportation require approval by HQDA ODCSOPS (DAMO–SSD).

i. Movement of chemical agents will be kept to a minimum consistent with operational requirements. Movement of chemical agents will be kept to the smallest quantities appropriate to support operational requirements.

j. Movement routes will be planned to avoid heavily populated areas.

k. Movement of chemical agents will be as discreet as possible. Personnel accompanying a movement using non–military transportation are authorized civilian attire to ensure maximum discretion.

7–4. Planning

In planning for the movement of chemical agents, consider the following:

a. Known and potential hazards.

b. Current intelligence estimates of the general and local threat relating to point of origin, routes, enroute stops and destinations.

c. Type and means of shipment.

d. Availability of security resources.

e. Source and availability of emergency assistance.

f. Command, control and communications.

g. National Environmental Policy Act (NEPA) requirements and potential environmental issues such as wildlife areas along the route.

7–5. Procedures

Before loading, all vehicles and aircraft will be searched for unauthorized personnel or equipment and inspected for possible sabotage. Entry controls will be established and a roster maintained to ensure that only personnel required for loading or unloading chemical agents, for providing logistical support and security and for command supervision are allowed within the loading area.

a. During loading/unloading operations and enroute halts, a temporary exclusion area will be established around each carrier. Access to chemical agents will be controlled. Personnel accompanying the shipment will be knowledgeable of the tasks outlined in paragraph 7–11b.

b. Visually inspect highway vehicles and aircraft carrying chemical agents on arrival at the receiving installation. If any liquid contamination is found, isolate the carrier and execute appropriate confirmation, decontamination, and CAIRA procedures as found in chapter 9.

7–6. Command, control, and communications

a. MACOMs will plan, supervise, and track all movements of chemical agents outside of military installations. During any movement where chemical agents (except binary components and quantities below the threshold amounts listed in tables 6–1 and 6–2) are removed from the direct control of the assigned custodian, a technical escort officer (TEO) will be responsible for custody, safety and security during movement.

b. The TEO and TEU will maintain communications to report the shipment's progress and to request assistance if required. If a shipment is delayed, the TEO will notify TEU; TEU will then notify the shipper and receiver.

7–7. Information control

a. Handle information concerning times, movement plans, routes, and destinations on a strict need–to–know basis and classify per AR 380–67.

b. Plans and procedures will contain operational security measures to closely control all information on planned and actual off post/installation movement of chemical agents.

7–8. Packaging, labeling, placarding, and documenting procedures

a. Items listed as "forbidden" by DOT will not be shipped unless special permit or waiver allows such shipment as an exception.

b. Shipping activities will prepare and distribute the documents prescribed in DOD 4500.32–R (MILSTAMP) and DOD 4500–9.R.

c. Package and ship chemical agent as prescribed in DOD 4500.9–R and TM 38–250. The items being shipped will be listed on the DOT shipping document per 49 CFR rules. (Note: Use the item UN number to determine the proper shipping name.)

d. Chemical agent material will not be loaded, transported, packed or stored with other dangerous material except as permitted in the Loading and Storage Chart of Explosives and Other Dangerous Articles published in TM 38–250.

e. For off–installation shipments, cargo and vehicle will be labeled and placarded by the consignor per DOD 4500.9–R. For movements on a military installation, the cargo and vehicle will be labeled and placarded by the consignor per DOD 4500.9–R, approved MACOM regulations, and mode specific regulations.

7–9. Technical escort

a. Technical escort personnel will be knowledgeable of the hazards, safety precautions, and security aspects of the shipments and will have required equipment before starting the mission.

b. Personnel assigned technical escort duty will have security clearances commensurate with the security classification of the chemical agents or shipment they are assigned to accompany and must be PRP certified.

c. The TEO has custody of a shipment from the time it is accepted until the TEO relinquishes custody of the shipment to the authorized recipient. The Commander, TEU or his or her designated representative will designate the TEO on orders. When additional security is provided by a source other than TEU, these forces will be under the operational control of the TEO. Transfer of custody of chemical agents between TEOs will be coordinated to ensure adequate security. On extended trips with overnight stops, the TEO may transfer custody of chemical agents to a commander who has a chemical storage area compatible with the chemical agents being escorted.

d. Before departure, the TEO will ensure that the escort and security personnel are properly equipped. The TEO will also verify that the drivers of load–carrying vehicles are properly qualified. The TEO will ensure a proper line of succession is known in the event that he or she becomes incapacitated.

e. The TEO will ensure that all personnel are familiar with the following:

(1) Duties and conduct while enroute, including rules of engagement contained in approved OPLANs.

(2) Actions to be taken in case of civil disturbance, attempted hijackings, or other emergencies such as accidents, incidents, unusual delays, or emergency disposal.

(3) Hazardous nature of the mission and its importance to National defense.

(4) News releases prescribed in AR 360–5 (chap 10) and DA Pam 50–6 (chap 8).

(5) Safety and decontamination procedures.

f. When necessary, the TEO may inform carrier personnel and civil officials that the shipment is hazardous military cargo that must be transported expeditiously. When assistance is obtained from a civilian agency, representatives may be informed of the nature of the material.

g. At destination, the TEO will ensure that the authorized recipient is identified from information provided by the consignor.

7–10. Escort and security personnel and equipment

a. The TEO will be knowledgeable in the use of equipment and this regulation and other directives pertaining to the transportation, safety, and fire fighting procedures for the chemical agents being moved. The TEO is responsible for maintaining security at all times.

b. The TEO will have operational control of all security guards and escort personnel during the movement. The senior member of the guard force will provide advice and assistance to the TEO in all matters involving security.

c. The TEO accompanying an air shipment has complete jurisdiction over the cargo, but the TEO has no jurisdiction over the aircrew or the operation of the aircraft.

7–11. Escort training

a. All TEU personnel in MOS 54B and 55D, Officer AOC 74B and 91E, and all TEU Army civilian toxic material handlers (position WG–6511) assigned to escort duties will attend the Technical Escort Course (#2E–SI5J/494–ASIJ5 conducted by the Ordnance Missile Munitions Center and School, Redstone Arsenal, AL).

b. Commanders will establish refresher training programs regarding the procedures and practices necessary for the safe and secure movement of chemical agents. While all personnel are not expected to be fully qualified in each of the areas below, sufficient personnel accompanying the movement will be cross–trained to provide critical skill redundancy in tasks specified below:

(1) Safety and health hazards from agents and explosives to include first aid and self/buddy aid procedures.

(2) Recognition of symptoms of chemical agent exposure.

(3) Care and proper use of chemical protective clothing and equipment.

(4) Escort responsibilities including those of custody, security, and safety.

(5) Communications procedures and reporting requirements.

(6) Loading, packaging, and tie–down procedures including load limitations and high explosive quantity distance requirements.

(7) Carrier maintenance standards, electrical grounding requirements, and maintenance limitations while transporting toxic chemical agents.

(8) Ground handling and support equipment and procedures.

(9) Chemical agent and explosive labeling, placarding requirements, and customs procedures.

(10) Procedures for coping with possible emergencies during movement to include safe parking areas.

(11) Procedures for decontaminating equipment, materials, and personnel.

(12) Access control.

(13) Safe and adequate procedures for maintaining continued surveillance during movement halts or rest pauses.

(14) Procedures for obtaining additional security support.

(15) Procedures for reporting and responding to CAI.

7–12. Reports of shipment (REPSHIP)

a. The shipping agency will transmit to the receiving agency an advance report of shipment 1 week before the shipping date and a final report on the day chemical agents are shipped. Information addressees are as follows:

(1) HQDA WASH DC//DALO–TSP/DAMO–SSD/DAMO–ODL/DACS–SF//.

(2) CDRAMC ALEX VA//AMCCB//.

(3) DIRUSANCA FT BELVIOR VA//ATNA–OP/ATNA–CM//.

(4) CDRFORSCOM FT MCPHERSON GA//FCJ3–OCE/FCJ3–TN//.

(5) CDRTEU APG MD//SCBTE–CO//.

(6) CDRSBCCOM APG MD//AMSCB–CM//.

(7) CDR52ORDGP (EOD) FT GILLEM GA//AFYB//.

(8) Commanders of installations used for refueling stops.

b. The advance report of shipment (REPSHIP) will contain the following information indicated in the order below. (Refer to AR 380–86 for assignment of proper security classification.)

(1) Transportation release number.

(2) Shipping order number.

(3) Name of carrier and exact routing.

(4) Vehicle number (car or tail number).

(5) Bill of lading number.

(6) Requisition number and reference to message authorizing shipment.

(7) Brief description of contents.

(8) Date time group of departure.

(9) Estimated time and date of arrival.

(10) Name, grade, and SSN of the technical escort team members assigned to accompany the shipment.

c. The receiving agency will transmit the advance REPSHIP to the shipping agency within 2 workdays of receipt of shipment. The return message will state the time and date of arrival, and the physical condition of the cargo (added as items 11 & 12 to the original REPSHIP message) and will be transmitted to the original advance REPSHIP addresses.

d. Chemical events occurring during shipment will be reported as prescribed in chapter 11.

7–13. Transportation

a. Aircraft.

(1) United States military owned or leased aircraft will normally be used to transport chemical agents.

(2) Only helicopters or multi–engine fixed wing aircraft will be used for moving chemical agents.

(3) The U.S. Army Soldier Biological and Chemical Command (SBCCOM) Transportation Officer will arrange for Air Mobility Command aircraft. Packaging, handling, clearance, and documentation will comply with TM 38–250.

(4) Before movement, the TEO will brief the aircraft commander and aircrew on CAI procedures.

(5) Standard approved loading and tie–down procedures will be used.

(6) Aircraft carrying hazardous materials will be loaded, unloaded, and/or parked in designated HAZMAT parking areas. Such areas will be sited as shown in DA Pam 385–64.

(7) If there is an emergency during the flight, AR 95–27 will be followed.

b. Motor vehicle.

(1) Vehicles transporting chemical agents over public highways will be inspected per DOD 4500.9–R. DD Form 626 (Transporting Hazardous Materials) will be prepared for all vehicles transporting chemical agent. Completed inspection reports will be distributed per DOD 4500.9–R. All unsatisfactory conditions must be corrected before the vehicles can be accepted for loading.

(2) Preventive maintenance may be performed on loaded vehicles. Minor repairs may also be made providing they are practical and are necessary for safe movement. Maintenance requiring the use of flame or heat producing devices and maintenance involving fuel tank repair are prohibited. Loaded vehicles will not be taken into a garage or repair shop for repair or storage.

(3) Vehicles will have brakes set and at least one wheel blocked during all loading, unloading, and tie down operations.

(4) Chemical agents moved by motor vehicle will be blocked and braced as appropriate for the type of vehicle used.

c. If there is an accident or incident during the handling, loading, or unloading of chemical agents, CAIRA procedures in DA Pam 50–6 and chapter 10 of this regulation will be followed.

Chapter 8
Chemical Agent Safety and Occupational Health Program

8–1. General

a. The main purpose of a chemical agent safety program is to provide maximum protection to workers, the environment, and surrounding communities, consistent with operational requirements. Commanders will implement a program that meets or exceeds the guidelines contained in AR 385–10, AR 385–61, AR 385–64, DA Pam 40–8, DA Pam 40–173, DA Pam 385–61, DA Pam 385–64, and applicable safety guidance issued by the Army.

b. Commanders will apply OSHA and other non–Army regulatory or consensus safety and health standards to chemical agents, chemical agent derivatives, equipment, systems, operations, or workplaces containing chemical agents,

in whole or in part, insofar as practicable. An operation will be considered "military unique" if there are no civilian operators performing the same job.

c. When safety standards in Army publications conflict with a legal standard such as the Occupational Safety and Health Act, or provide a lower degree of protection, the legal standard will apply. When the Army standards are equal or exceed such requirements in providing workplace safety, the Army requirements will apply.

d. A hazard analysis will be conducted for each chemical operation to include recovered chemical warfare material (RCWM), research chemical agents, and toxic chemical agents and munitions. For ongoing operations such as chemical demilitarization or site RCWM remediation operations, a single hazard analysis is sufficient provided it is periodically updated to reflect changes in procedures and lessons learned. Hazard analyses will be performed on the total system not just the chemical agents themselves. Each hazardous condition will be assigned a Risk Assessment Code (RAC) as defined in AR 385–10 and AR 385–61. Hazard analysis documentation will show the RAC before a control is placed on the hazard, use of a control to eliminate or mitigate a hazard, and the RAC after application of the control.

8–2. Leaker isolation

a. When evidence of a leaking chemical munitions or container in storage is noted, the source will be located, isolated, and contained as soon as practical consistent with all safety, security, and environmental protection requirements. If the source cannot be located immediately, the structure will be closed initially, then continuously filtered and periodically monitored until the source is isolated or until low level monitoring indicates the source no longer exists.

b. Commanders will increase readiness to implement CAIRA plans during leaker isolation operations.

c. Isolation operations need not extend beyond duty hours and will not prevent the accomplishment of unrelated, concurrent operations such as environmental monitoring and safety in storage inspections.

d. During demilitarization operations, personnel processing leakers will wear appropriate levels of personnel protective equipment. Normal operations do not have to be delayed to isolate low–level leakers.

8–3. Occupational health

An occupational health program will be established in support of the chemical surety program per AR 11–34 (The Army Respiratory Protection Program); AR 40–5 (Preventive Medicine); and DA Pam 40–8 (Occupational Health Guidelines for the Evaluation and Control of Occupational Exposure to Nerve Agents GA, GB, GD, and VX). Other references include DA Pam 40–173 (Occupational Health Guidelines for the Evaluation and Control of Occupational Exposure to Mustard Agents H, HD, and HT); OTSG policy guidance concerning industrial hygiene support for the Army Chemical Agent Occupational Health Program; and 29 CFR 1910–134.

Chapter 9
Chemical Agent Security Program

9–1. General

It is DOD and Army policy that the lethal characteristics of chemical agent warrant extraordinary measures to ensure that they are properly safeguarded against sabotage, theft, loss, seizure, or unauthorized access, use, or diversion. Commanders will implement a chemical agent security program per the standards of AR 190–59. A copy of the storage site physical security plan and the site capture and recovery plan as required by AR 190–59, will be forwarded to USANCA, ATTN: ATNA–OP, 7150 Heller Loop, Suite 101, Springfield, VA, 22150–3198, for inclusion in the chemical site database.

9–2. Threat information collection and reporting

a. Installation commanders will establish and maintain close coordination with supporting military intelligence units, local civil and Federal police agencies (for example, FBI). Installation commanders will coordinate and disseminate threat information per AR 525–13.

b. Military intelligence sources will conduct foreign counterintelligence collection and disseminate information on foreign threats against the Army as appropriate. Under AR 525–13, paragraph 2–7, USACIDC will collect, analyze, and disseminate criminal information pertaining to threat activities within applicable statues and regulations.

c. Civil and Federal police authorities will be requested to provide timely information that may affect the installation security.

d. Any penetration, attempted penetration, or other unexplained degradation of security will be reported through command channels to HQDA, ODCSOPS (DAMO–ODL) per AR 190–40 (Serious Incident Report).

e. Commanders will periodically brief personnel on the threat to themselves and the installation as well as personnel security measures to protect themselves and deter the threat.

Chapter 10
Chemical Accident or Incident Response and Assistance

10–1. General

Chemical accident or incident response and assistance (CAIRA) encompasses those actions taken to save lives, preserve health and safety, and protect the environment, secure chemical agent, and protect property. MACOMs, installations, and contractor facilities with a chemical agent mission will establish CAIRA plans per DA Pam 50–6. Forward a copy of this plan to USANCA, ATTN: ATNA–OP, 7150 Heller Loop, Suite 101, Springfield, VA 22150–3198, for inclusion in the chemical site database.

10–2. CAIRA exercise program

a. There are three types of CAIRA exercises as depicted in table 10–1. These exercises are described below:

(1) Installation CAIRA exercises are quarterly training exercises used by the installation commander to ensure that the IRF is trained and ready. Each year at least two exercises will be coordinated with State and local authorities and other emergency response agencies identified in plans to exercise and enhance emergency response capabilities. These coordinated exercises will involve off–post emergency response agency headquarters and response teams where possible (for example activating emergency operations centers and emergency medical teams). AMC stockpile storage sites will involve a major portion of the basic elements of the IRF as defined by DA Pam 50–6 in field play of all quarterly exercises. Commanders outside the CSEPP evaluation process will, during one of their required quarterly exercises, involve field play of a major portion of the basic elements of the IRF as defined by DA Pam 50–6. The CSEPP exercise will count toward one of the installation's quarterly CAIRA exercises.

(2) Service Response Force exercises are exercises of the SRF conducted within a 2–year window and evaluated by the MACOM. SRFXs are scenario–driven field tests of the SRF (that incorporates the IRF) that include the essential functions listed in DA Pam 50–6. The MACOM may elect to hold more than one exercise within the 2–year window, provided that more than 2 years does not elapse since all essential functions are documented as having been exercised. SRFXs will be conducted concurrent with CSEPP exercises whenever possible.

(3) CSEPP exercises test the entire emergency response effort (to include off–post emergency response capabilities) and evaluate the interaction of all components. CSEPP exercises involve mobilization of all emergency service and response agencies participating in the CSEPP and the activation of communications centers and emergency facilities such as EOCs and command posts. Jurisdictions participate during CSEPP exercises at a level commensurate with the risk posed by the hypothetical plume. CSEPP exercises are held annually. During a CSEPP exercise, the IRF will demonstrate its capability to operate successfully. The CSEPP evaluation team will evaluate the IRF as part of the overall CSEPP exercise. Evaluation reports will be formatted per CSEPP exercise requirements. Successful execution of a CSEPP exercise fulfills the requirement for an installation quarterly CAIRA exercise. If an annual CSEPP exercise is canceled, the installation will substitute a comprehensive IRF CAIRA exercise evaluated by the MACOM within 6 months of the date of the cancelled exercise.

Table 10–1
CAIRA Exercise Requirements

Organization	Installation CAIRA Exercise	SRF Exercise	CSEPP Exercise
Chemical Stockpile Storage Sites	Quarterly	Support as necessary	Annually
Dugway Proving Ground	Quarterly	None	None
Chemical Defense Training Facility	Quarterly	None	None
Tenant Activity (Demil and other GOCO facilities)	Quarterly (See note 1.)	Support as necessary (See note 1.)	Support as necessary (See note 1.)
MRICD	(See note 2.)	(See note 2.)	(See note 2.)
COCO Labs	Quarterly	None	None
AMC	Annually when CSEPP canceled	2-year window	None

Notes:

[1] The facility/site and host Installation Commander will ensure each demilitarization facility and the Chemical Agent Munitions Disposal System are integrated into host installation exercise programs.

[2] MRMC and the host Installation Commander will ensure MRICD is integrated into the host installation exercise program.

b. MACOMs can enter into an agreement with another MACOM for the conduct of exercises to satisfy the requirements of this regulation.

c. All CAIRA exercises will be documented by written after action reports. Commanders will develop programs to follow–up on lessons learned documented in after action reports, and ensure appropriate remedial actions are taken. Forward a copy of the after action report to USANCA, ATTN: ATNA-OP, 7150 Heller Loop, Suite 101, Springfield, VA 22150–3198, for inclusion in the chemical site database.

Chapter 11
Chemical Event Reporting Procedures

11–1. Defining a chemical event

A chemical event encompasses chemical accidents, incidents and other circumstances where there is a confirmed or likely release to the environment, exposure of personnel, threat to the security of chemical agent materiel, or any incident of concern to the local commander. The anticipated response to a chemical event is the activation of all or select portions of the Initial Response Force (IRF) with possible Service Response Force (SRF) deployment, as necessary. False positives from real–time continuous monitoring devices are not considered chemical events.

11–2. Chemical event categories

a. Category I: Non–surety emergency (informational).

(1) Unexpected chemical surety related occurrences reported to State or local jurisdictions as provided in local agreements but not mandated by law.

(2) Any unexpected occurrences (without release of chemical agent to the atmosphere) which has a potential for negative reactions by the news media, State, or local officials towards chemical agent operations at Army installations during storage, transportation, or demilitarization. This includes circumstances where in the judgement of the reporting installation commander, the occurrence could cause embarrassment to the Army.

(3) Workers reporting that they were exposed to chemical agent, regardless of whether the postulated exposure is confirmed by clinical or laboratory evaluation.

(4) Confirmed detection of chemical agent exceeding the established airborne exposure limits cited in AR 385–61, outside of the primary engineering controls but within secondary engineering controls.

(5) Discovery of Recovered Chemical Warfare Materiel (RCWM).

b. Category II: Limited area/post only emergency (site response).

(1) Confirmed presence of liquid agent outside munitions, bulk containers, or overpack containers.

(2) Confirmed detection of agent occurring for any period of time outside of engineering controls into the environment, exceeding the AEL source emission limit cited in AR 385–61. This includes agent operations conducted in a closed system (filtered bunkers, filtered igloos, overpack containers, on site containers, demilitarization operating facilities and outdoor glovebox operations) designed to protect unprotected workers or the ambient environment.

(3) Any known release of chemical agent above the AEL cited in AR 385–61 for unmasked agent workers where unprotected or inadequately protected personnel have been present or likely to have been present at the time of release.

(4) Personnel exhibiting signs or symptoms associated with chemical agent exposure.

(5) A deliberate attempt to release Army chemical agents that is unauthorized or during the commission of a criminal act.

c. Category III: Community emergency (external response).

(1) Explosion or fire where chemical agents are involved, resulting in personnel injury or substantial structure damage.

(2) Actual theft of chemical agent material.

(3) Any release of chemical agent into the atmosphere that is projected by approved downwind hazard projection methods which indicate a hazard greater than no effects will extend beyond the installation boundary.

(4) Any release of chemical agent into the atmosphere, confirmed by an approved detection method, which exceeds the general population AEL in AR 385–61, that may extend beyond the installation boundary.

11–3. Reporting procedures

a. Chemical events will be reported directly to HQDA ODCSOPS, Army Operations Center (AOC). Reporting requirements are as follows:

(1) Installation or site commanders will make immediate, direct telephonic notification within 3 hours from the time the chemical event has been confirmed. Notification will not be delayed due to lack of detailed information. In the case of a chemical agent release, installations are responsible for notifying State and local officials for the affected areas, as coordinated in local plans and agreements.

(2) The installation commander will also notify the National Response Center as soon as the reportable quantity is exceeded as defined by 40 CFR 302.

(3) Host installation commanders will report chemical events occurring at tenant chemical storage and demilitarization facilities.

(4) Chemical event reports will be made using the format at figure 11–1, providing as much information as is available at the time. Supplemental and final reports must be clearly identified and communicated as such. When applicable, final reports will include Chemical Leaker Report numbers.

Chemical Event Report

(Classify report as per AR 380-86)

Header: "THIS IS A CATEGORY X CHEMICAL EVENT REPORT, RCS: CSGPO-453." (Replace X with the appropriate category, I, II, or III)

Body:
1. Date and time (local, i.e. the time and date the event occurred for initial reports) of event/event control number (combination of the acronym of the reporting unit and the fiscal year in which the event occurred and a sequence number assigned locally (e.g., TEAD 92-99). The event control number will be used on all supplemental and final reports. Supplemental and final reports will be clearly stated followed by the control number. New information on supplemental reports is to be in bold print to distingush from information previously reported.
2. Location. (Area and igloo number – example Anniston Army Depot, Igloo 2266)
3. Quantity and type of munition(s) or container(s) and chemical agents involved. (Number of leaking munitions for each individual report, lot number, stock number, model number, concentration of agent and detection method used for both initial detection and confirmation. Include as much information as is available at the time of report.)
4. Description of what has happened. (Include statement of whether chemical event is a result of non-deliberate or deliberate action. If not applicable, so state. Include as much detail as possible at the time of report)
5. Emergency notification level (i.e., non-surety emergency, limited area emergency, post only emergency, community emergency. If not applicable, so state.)
6. Description of property damage.
7. Personnel deaths and/or injuries.
8. Whether off-post medical services and/or facilities were required.
9. State if SRF commander is required.
10. Assistance required (e.g., augmentation forces of any type, EOD, security forces, equipment, materials).
11. Any other pertinent information (e.g., if news release was issued, safety and security measures taken, amount of agent released, weather patterns and conditions at the time of event).
12. Commander's assessment of the situation.
13. In reporting emergency destruction of hazardous munitions (e.g., suspected chemical munitions or materials), reporting agencies must add the following:
    a. Type of air samples and test kits used and results obtained.
    b. Type and amount of explosives used to destroy each munition.
14. Elements of media release (if not yet made, include expected time of release).
15. Notification of senior government officials (state to whom and when notification was made).
16. Point of Contact. (Name and phone number)

NOTE: Leaks in stockpile munitions will also be reported through ammunition quality assurance surveillance channels per SB 742-1.

Figure 11–1. Format for the Chemical Event Report

(5) Initial written notification will be provided by electronically transmitted message (using immediate or higher precedence) as soon after the initial telephonic report that additional information becomes available, but not later than 24 hours after the initial telephonic notification was made. If access to the electronic message system is not readily available, the initial notification may be transmitted by facsimile to the AOC; however, the required electronic message must be forwarded to all addresses at the soonest opportunity.

(6) Exercise and test reports will be identified at the beginning and end with the phrase: "THIS IS A TRAINING EXERCISE (EXERCISE NAME)".

(7) Chemical event reports will be classified per AR 380–86 and dispatched to:

(a) HQDA WASH DC//DAMO–SSD/DAMO–ODO–AOC–DOMS/DAMO–ODL/DALO–SMA–ECD/DACS–SF/SGPG–PSP/SAIG–ID/SAAL–ZC/SAIE–ESOH/SAPA–PC//SALL–P//.

(b) CDR SBCCOM APG MD//AMSSB–OCO/AMSSB–OSM/AMSSB–OSF//.

(c) DIR USANCA FT BELVOIR VA//ATNA–OP/ATNA–CM//.

(d) DIR USATCES//SIOAC–ES//.

(e) PMCD APG MD//SFAE–CD–Z/SFAE–CD–N//.

(f) CDR AMC ALEXANDRIA VA//AMCOC/AMCCB/AMCSF//.

(g) Other major Army commanders and agencies as appropriate.

b. Special reporting requirements. Chemical agent research and development contractors will report as specified in their contract to either the U.S. Army Medical Research Institute of Chemical Defense or the U.S. Army Edgewood Chemical Biological Center, which will make the required notifications.

11–4. Notifying emergency management/response officials

a. Responsible commanders will report any chemical event declared a community emergency by the fastest, most efficient means available to State and local emergency response officials responsible for the affected areas.

b. Commanders will also notify these officials of all levels of emergency as coordinated and established in local plans and agreements. (See DA Pam 50–6 for further guidance.)

11–5. Notifying the public

a. Notification to the public means making information regarding chemical events available to the public at large through traditional public affairs channels.

b. Chemical installations/activities will report situations to the public per local agreements; however, loss of chemical agent and criminal or terrorist acts directed at chemical munitions, agents, or storage areas will not be reported without HQDA, ODCSOPS, DAMO–SSD approval.

c. State/local government officials will be notified through their public information officers or by locally negotiated means before news releases to the general public if at all possible.

d. Before a news release to the public, the local congressional office will be notified, if at all possible. If the attempt to notify the congressional office is unsuccessful, state this fact in the chemical event report, and make the news release. In cases where health and safety reasons preclude prior Congressional notification, the news release and local Congressional notification may occur simultaneously.

e. For release of chemical agents that presents a hazard to the public or occurs outside a military reservation, specific guidelines in AR 360–5 apply.

f. For chemical events occurring at tenant organization facilities, the tenant commander will coordinate all news media releases with the installation commander per local procedures.

11–6. Chemical event investigations

a. Chemical events which meet the criteria for Class A or B Army accidents(see AR 385–40) or involve off-post relese of agent outside the boundaries of military reservations (excluding COCO facilities) will be investigated per AR 385–40. The board will consist of at least four members, two of whom are familiar with the effects of chemical agents. The board must include members who are experienced in accident investigation techniques. The U.S. Army Safety Center (USASC) will be notified in addition to the other addressees in paragraph 11–3 for all Class A and B accidents.

b. MACOM commanders will establish procedures to review each chemical event and to initiate safety investigations when warranted per AR 385–40. The degree and level of investigation will be determined by the MACOM.

c. A commander may direct or request a local investigation of a chemical event by an investigating officer or board of officers per the provisions of AR 15–6.

d. When a felony crime (such as negligent homicide, theft, wrongful destruction of government property) of Army interest occurs, USACIDC must be notified per AR 195–2.

Chapter 12
Recovered Chemical Warfare Material

12–1. General

a. This chapter applies to all recovered chemical warfare material (RCWM) as defined in the glossary regardless of how acquired, whether by deliberate unearthing as part of a real property remediation/removal operations or by chance discovery. All recovered chemical agent identification sets (CAIS) will be treated as RCWM.

b. U.S. Army Chemical Surety Program provisions in this regulation are not applicable to RCWM except as outlined in this chapter.

12–2. Assessment of RCWM

a. On discovery of RCWM, the initial EOD or TEU responders will make a preliminary assessment.

b. As soon as possible after the discovery of RCWM, TEU will conduct a detailed assessment to include a written report with photographs and test results. Such documented assessments will be based on circumstances of discovery, gross and/or low level monitoring, visual examination, physical characteristics, X–ray imagery, and other testing as appropriate.

c. If a positive determination cannot be made concerning contents, the unknown RCWM will be managed per procedures applicable to the most hazardous of potential fills, as determined by the circumstances associated with the discovery.

12–3. Safety and security

a. Safety concerning RCWM containing suspect chemical agent will be per chapter 8.

b. Safety concerning RCWM containing suspect highly toxic industrial chemicals (such as chlorine, hydrogen cyanide, potassium cyanide, carbonyl chloride, cyanogen chloride, chloropicrin) will be per AR 385–10 and practices which are generally accepted for industrial operations.

c. Safety concerning RCWM containing explosive components will be per AR 385–61, AR 385–64, DA Pam 385–61, and DA Pam 385–64.

d. Security concerning RCWM containing suspect chemical agent or explosives will be per the protective measures specified in AR 190–11 for Category II ammunition and explosives.

(1) Vulnerability assessments may be used to modify protective measures subject to approval by the first general officer or civilian SES manager in the chain of supervision of the operation.

(2) Outside of material located on an installation with a chemical surety mission, access to such items will be limited to EOD or TEU personnel who are knowledgeable concerning the safety, security, custody, and accountability of chemical agents and explosives. Although these personnel are not required to be in the PRP, the two–person rule will apply for reasons of safety.

e. Security concerning RCWM containing suspect highly toxic industrial chemicals will be per measures generally accepted for industrial operations.

f. On discovery of RCWM, HQDA, ODCSOPS (Army Operations Center) (AOC) and the Director of Army Safety will be notified per chapter 11.

g. Before any activity on a RCWM site other than initial emergency management required to stabilize the site, approved safety and health plans and procedures are required. Safety submissions will serve as the specification for conducting work at the project. Deviation from the responsibilities, procedures, and controls outlined in a safety submission is not permitted unless approved by the Army Safety Office.

h. The MACOM with overall responsibility for the RCWM remediation project will coordinate and obtain written concurrence for the RCWM safety submission with those Army agencies responsible for work activities at the site.

12–4. Classification of RCWM

a. RCWM found buried will be managed in compliance with environmental laws and regulations, as applicable: Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); Superfund Amendments and Reauthorization Act (SARA); Resource Conservation and Recovery Act (RCRA).

b. If the recovery organization believes that the buried RCWM is not subject to management under the provisions of CERLA, SARA, or RCRA, no off–site removal action of that RCWM will commence until the Office of the Assistant Secretary of the Army (Installations and Environment) (ASA(I&E)) has reviewed the circumstances and made a final determination.

c. RCWM discovered on firing ranges will be handled per the EPA Military Munitions Rule (40 CFR 266 Subpart M) with respect to classification, transportation, and disposal.

12–5. Management

a. RCWM.

(1) Deliberate unearthing of suspect RCWM will not begin until all required plans and approvals are obtained for the transportation and storage or treatment unless such recovery is specifically authorized by ASA(I&E). CAIRA response plans will be integrated into site–specific safety and health plans. (See chapters 8 and 10.)

(2) U.S. Army EOD will perform only emergency containment and emergency storage operations. On–site destruction of RCWM will be performed only by specially qualified TEU personnel.

(3) Emergency on–site destruction of chemical munitions may be considered as an option to reduce risk.

(4) Non–emergency on–site destruction of chemical munitions may be considered as an option subject to CERCLA or RCRA and managed according to environmental laws and regulations, as applicable.

(5) On–site security between the time of discovery and time of treatment/transport will be provided by the commander with area responsibility or by local law enforcement authorities, as applicable.

(6) Installation environmental coordinators can provide additional information on proper actions (such as NEPA, State, and local requirements).

b. Samples. Chemical agent samples drawn from RCWM will be managed under the laboratory safety and security provisions of 29 CFR 1910.1450. The two–man rule will be observed for safety purposes.

c. Contaminated soil and debris.

(1) Soil suspected of contamination by chemical agents or industrial chemicals will be presumed hazardous until confirmed otherwise by laboratory analysis.

(2) Soil suspected of contamination will be managed on–site per environmental laws and regulations, as applicable.

12–6. Transportation

a. RCWM.

(1) SBCCOM will coordinate transportation plans with Federal and State regulatory agencies, as required.

(a) RCWM constituting an emergency threat to public health or safety will be transported under the emergency provisions of 50 USC 1517 and per environmental /transportation laws and regulations, as applicable.

(b) RCWM not constituting an emergency threat to public health or safety will be transported under the general provisions of 50 USC 1512 and per environmental/transportation laws and regulations, as applicable.

(2) In general, TEU will transport RCWM to an approved location if on–site treatment or disposal cannot be accomplished.

(a) No transport of RCWM from the site will commence until TEU receives verification from SBCCOM that the storage destination has been approved and that the required regulatory notifications have been accomplished.

(b) Transport of RCWM from the site will be under 50 USC 1512–1517, AR 75–15 paragraph 3–7, and environmental/transportation laws and regulations, as applicable.

(c) The decision whether to arm TEU escort personnel during transport will be made by the Commander, TEU.

(d) Once transported to an installation with an active surety mission, RCWM will be afforded the same safety and security measures as chemical surety material. This is not intended to reclassify RCWM as surety material. In the event that the item or fill cannot be positively identified, the item will be treated as having the most hazardous fill for the type of munition or item it most closely resembles.

b. Laboratory samples.

(1) Transport of RCWM samples containing suspect chemical agents and hazardous chemicals from the site will be according to transportation laws and regulations, as applicable. Shipment by commercial carrier is authorized.

(2) Accountability of laboratory samples during transport will be maintained through proper chain of custody documentation, as applicable. TEU escort during transportation of laboratory samples is not required.

(3) The destination of samples containing suspect chemical agent material will be limited to laboratories that have been certified for chemical agent analysis.

c. Soil and debris.

(1) Transport of contaminated soil and debris from the site will be under environmental/transportation laws and regulations, as applicable.

(2) Accountability of contaminated soil and debris during transportation will be maintained through regulatory chain of custody documentation, as applicable. TEU escort during transport of soil and debris is not required.

12–7. Storage of RCWM

a. AMC will prepare facilities for the long–term storage of RCWM recovered within CONUS when off–site storage is necessary pending final demilitarization or destruction.

(1) AMC will coordinate with State officials to obtain the required environmental permits for long–term storage.

(2) AMC will designate the facility to which the RCWM will be transported, based on the availability of storage space and the nature of the RCWM recovered.

b. HQDA, ODCSOPS (DAMO–SSD) will designate the OCONUS storage facility for the long–term storage of RCWM recovered OCONUS when off–site storage is necessary pending final demilitarization or destruction. HQDA, ODCSOPS (DAMO–SSD) will coordinate with the Department of State, as required.

c. RCWM stored in facilities pending demilitarization or destruction will be managed under environmental laws and regulations, as applicable.

12–8. Reporting of RCWM

a. Recovery of an actual or suspect chemical agent munition or container will be reported by the site custodian per chemical event reporting procedures specified in chapter 11.

(1) For RCWM discovered on military facilities, the installation commander will initiate the required chemical event report

(2) The U.S. Army Corps of Engineers will initiate chemical event reports for RCWM discovered incidental to Defense Environmental Restoration Program projects at formerly used Defense sites.

(3) SBCCOM will initiate the required chemical event reports in situations where custodianship is in doubt.

b. The site custodian will report recovery of an actual or suspected chemical agent munition or container to the National Inventory Control Point for reporting under applicable treaties.

Chapter 13
Chemical Surety Program Evaluations

13–1. General

a. This chapter prescribes policies and procedures for assessing the chemical surety program. It describes chemical management evaluations (CME), chemical surety inspections (CSI), and limited scope surety inspections (LSSI) conducted by the DAIG at organizations and activities that have chemical surety program responsibilities.

b. These assessments are conducted to accomplish the following:

(1) Determine the capability of each organization to accomplish its assigned mission in a safe and secure environment.

(2) Determine the adequacy of support and guidance provided to each chemical surety organization.

(3) Determine and pursue systemic issues affecting the commander's capability to perform the mission.

13–2. Chemical management evaluations

Chemical management evaluations (CMEs) focus on determining the root causes of systemic problems affecting chemical surety programs. They will normally be conducted independently as required by the DAIG. CMEs will normally evaluate a functional issue involving multiple levels of command. Follow–up evaluations of CMEs may also be scheduled to ensure that the problems have been resolved and corrective actions taken.

13–3. Chemical surety inspections/limited scope surety inspections

a. The DAIG will conduct CSIs of all U.S. Army activities, organizations, and contractor operations with chemical surety missions.

b. The DAIG will normally conduct CSIs at activities and organizations with chemical surety missions every 18 months.

c. CSIs of organizations having management responsibility for administering contracts involving chemical agents will include assessment of the contract oversight program.

d. LSSIs evaluate the surety program of organizations with a chemical surety–related responsibility not covered by CSIs

13–4. Scope of CSI

The scope of a specific CSI is determined by the structure of the organization's mission statements or other appropriate mission directives. The functional areas to be assessed during a CSI may include, but are not limited to those listed in table 13–1 below.

Table 13–1
CSI Scope

MISSION OPERATIONS	SECURITY
Research and development	Security planning procedures
Test and evaluation	Perimeter security
Storage and surveillance	Storage requirements
Training	Support facilities
Escort and transportation (on and off–post)	Key and lock control
Special projects	Security forces, including augmentation
Calibration, maintenance, and readiness	Training program
Inspection program	Transportation security
Adequacy of physical facilities	Waivers and exceptions
Inventory and accountability	Recovery operations
Oversight of disposal programs at installations hosting disposal facilities	Emergency response capability
Quality assurance programs	Internal and external inspections
Adequacy of resources	Access control
Environmental compliance program	Intrusion detection and assessment
Maintenance of NBC defense equipment used in chemical agent operations	
SAFETY	**SURETY MANAGEMENT**
Plans and procedures	PRP management
Personnel protection and protective equipment	Adequacy of manning
Agent monitoring program	Oversight of safety, security, surety management program and external support
Hazard analysis program	
Inspection and compliance monitoring program	
Lightning protection	
Material handling equipment	
EMERGENCY RESPONSE	**DISPOSAL FACILITIES***
CSEPP	COR oversight program
CAIRA program	Engineering controls including configuration control procedures
Chemical event reporting	System and process controls
	Calibration program
EXTERNAL SUPPORT	
Conditions beyond the capability of the inspected organization to avoid, influence, or correct which are the responsibilities of supporting activities.	

Notes:
* Inspections of chemical agent disposal facilities would normally include these areas in addition to the others listed in this chart.

13–5. Scope of LSSI

The inspecting agency determines specific LSSI evaluation requirements based on the inspected activity's organization, mission statement, and functions.

a. Evaluation ratings, inspection reports, and reclama procedures will parallel those used for CSIs.

b. A primary concern during an LSSI is the impact of the inspected organization's management of programs that affect subordinate activities.

13–6. CSI schedules

a. The DAIG will publish an annual schedule of CSIs 90 days before the beginning of each fiscal year. Copies of this schedule will be provided to affected MACOMs, HQDA (DAMO–SSD/DAMO–ODL/DACS–SF), and Director, USANCA (ATNA–OP).

b. The DAIG will provide inspector access rosters to inspected organizations at least 30 days before scheduled inspections. DAIG access rosters will include security clearances and qualifications of inspectors.

13–7. CSI ratings

Inspected organizations will be given one of the ratings in table 13–2. As used in this rating system, the term "deficiency" applies to both deficiencies and factors affecting operations.

Table 13–2
CSI Ratings

RATING	DEFINITION
NO DEFICIENCIES	When an organization demonstrates that it can accomplish critical tasks while providing a safe and secure environment per approved publications and directives
DEFICIENCIES: NONE FAILING	When an organization demonstrates that it can accomplish critical tasks while providing a safe and secure environment under approved publications and directives
DEFICIENCIES: FAILING, CORRECTION VERIFIED	When one or more conditions found in paragraph 13–8 existed but were corrected and verified by the inspection team
DEFICIENCIES: FAILING, RESOLUTION/REINSPECTION REQUIRED	When one or more conditions found in paragraph 13–8 existed but were not, or could not, be corrected for verification by the inspection team

13–8. CSI rating guidelines

a. A DEFICIENCY FAILING may be given in the appropriate functional area when any of the following conditions exist:

(1) Failure to achieve or maintain assigned mission capability. This may include shortages in personnel, equipment, supplies, or authorized repair parts that prevent accomplishment of the chemical surety mission.

(2) Loss of accountability or custody of chemical agents.

(3) Failure to provide a safe environment for chemical agents.

(4) Failure to provide a secure environment for chemical agent. Examples include, but are not limited to the following conditions:

(a) Allowing unauthorized or unidentified access to chemical agents.

(b) Use of an inadequate or deficient intrusion detection system without sufficient compensatory measures (failure of an individual sensor in a multiple sensor system does not necessarily constitute an unsecured environment).

(c) Failure of security response forces to respond within specified time limits.

(d) Failure to establish limited/exclusion areas as required.

(e) Failure to post required patrols or sentries.

(f) Failure to lock or control entrances to limited or exclusion areas.

(g) Deficiencies in security facilities which individually or in combination with other security deficiencies could reasonably lead to unauthorized access to chemical agents in the absence of adequate compensatory measures.

(5) Inadequate response to an actual or simulated chemical accident or incident. Included are actions that could permit unnecessary loss of life, personal injury, destruction of property, or compromise of classified materiel or information.

(6) Failure to include essential chemical surety doctrine or technical and operational instructions in the curriculum or training program.

(7) Teaching chemical surety policies, procedures, or operations that are at variance with DOD, Army, or MACOM policy.

(8) A number of deficiencies or manner of performance indicating a lack of competence or a disregard for prescribed procedures.

(9) Failure to establish or maintain an effective program for chemical surety management.

b. External support may be given a DEFICIENCY: FAILING when any of the conditions above exist that are beyond the capability of the inspected organization to avoid, influence, or correct and are attributable to the supporting activity.

13–9. CSI reports

a. When an organization receives ratings of NO DEFICIENCIES, DEFICIENCIES: NONE FAILING, or DEFICIENCIES: FAILING, CORRECTION VERIFIED, regardless of the rating given to its external support, the inspected organization will be provided a final CSI report at the exit briefing. Reply by endorsement is not normally required; however, selected factors affecting operations or deficiencies may require reply by endorsement.

b. When the organization receives a rating DEFICIENCIES: FAILING, RESOLUTION/REINSPECTION REQUIRED, regardless of the rating awarded to its external support, a final report will be provided to the inspected organization at the exit briefing. All other organizations or activities required to take corrective actions will be provided appropriate extracts. The activity will forward a written response of corrective actions through command channels to HQDA, OTIG (SAIG–ID). OTIG (SAIG–ID) will re–inspect failing deficiencies within 90 days. The scope of a re–inspection will be limited to the specific area, activity, or operation that was the basis for the failing deficiencies.

The re–inspection may consist of the review and acceptance of the written response reporting the corrective action taken.

c. When external support is rated DEFICIENCIES: NONE FAILING; DEFICIENCIES: FAILING, CORRECTION VERIFIED; or DEFICIENCIES; FAILING, RESOLUTION/REINSPECTION REQUIRED, a written reply stating corrective action taken will normally be required. The activity cited for inadequate external support will be provided applicable extracts from the inspected organization's final report. The report of corrective action taken will be forwarded through command channels to HQDA, OTIG (SAIG–ID).

(1) The external support activity will forward a copy of the corrective action taken to the inspected organization. The inspected organization will not delay its written reply pending receipt of the corrective actions taken by the support activity.

(2) Re–inspection of the external support activity may consist of review and acceptance of the written response of corrective action. If required, the scope of a re–inspection will be limited to the specific area, activity, or operation that was the basis for the failing deficiency.

d. Copies of the inspection report will be provided to selected agencies and to the headquarters of the inspected organization.

e. A copy of DAIG CSI reports will be provided to the affected MACOM, HQDA (DAMO–SSD, DAMO–ODL, DACS–SF), and Director, USANCA (ATNA–OP).

13–10. Reclamas

a. Any commander in the chain of command of the inspected organization or external support organization may submit a reclama. Reclamas must be sent through the organizational chain of command to HQDA, DCSOPS, ATTN: DAMO–SSD, WASHINGTON, DC 20310–0400, for adjudication. Submit reclamas not later than 60 days after receipt of the final report by the inspected organizations.

b. Each commander in the chain of command will review, evaluate, and forward the reclama to the next higher headquarters. Any commander in the organizational chain of command may disapprove a reclama.

c. Final decisions on all reclamas will be forwarded through the chain of command to the organization requesting the reclama, and to HQDA, OTIG (SAIG–ID), other staff elements as appropriate, and Director, USANCA (ATNA–OP).

13–11. MACOM chemical surety management reviews

a. MACOMs with organizations and activities assigned chemical surety missions will do the following:

(1) Provide oversight.

(2) Ensure assigned surety organizations are funded and staffed to accomplish assigned missions.

(3) Conduct surety management reviews to determine the adequacy of unit training, support, guidance provided to its assigned surety organizations, and compliance with applicable surety regulations.

b. MACOMs will conduct management reviews of all organizations and activities with chemical surety missions, including COCO facilities, at least once every 24 months.

Chapter 14
Termination of Surety Status

14–1. General

This chapter prescribes the procedures to terminate chemical surety status of an installation or facility when chemical agent operations and storage are no longer performed.

14–2. Contractor–owned, contractor–operated (COCO) facilities

The surety status of COCO RDTE facilities will be terminated when the contractor has accounted for and transferred custody of all research chemical agents to the U.S. Army per contractual provisions and has been granted MACOM decertification.

14–3. Other chemical agent facilities

Installation or site surety status will be terminated when all chemical agents in accessible form has been demilitarized, detoxified, transferred, or consumed in experimentation.

a. The requesting activity will forward a request through command channels to terminate its surety status to HQDA, ODCSOPS (DAMO–SSD). Requests for surety status termination will include the following:

(1) The commander's certification that no remaining accountable quantities of chemical agent in accessible form exists on the installation or facility.

(2) Chemical agent air monitoring surveys and results.

(3) Certification that all facilities, equipment, and areas are free from chemical agent contamination to the maximum extent possible, as determined by current technology. (See DA Pam 385–61, chap 5 for decontamination standards.) For Chemical Weapons Demilitarization Facilities (CWDF), this means that demilitarization operations have been completed, that agent lines have been flushed, and that sufficient decontamination has been accomplished to meet the intent of paragraph 14–3a(1) above. At this point, all remaining materials, equipment, and facilities will be considered as potentially contaminated waste, which will be disposed of per Federal, State, and/or local Resource Conservation and Recovery Act (RCRA) or other applicable laws or regulations.

(4) Documentation that supports a verifiable audit trail for all actions taken in the determination.

(5) A chemical safety plan that describes the specific safety requirements for operations in and near the decontaminated facilities.

(6) Milestone schedule for further site restoration/reclamation, if required.

b. On approval, HQDA, ODCSOPS (DAMO–SSD) will issue a memorandum terminating the surety status of the installation or facility.

c. On receipt of the termination memorandum, the installation or facility will no longer be required to maintain surety requirements for security, accountability records may be appropriately retired, the PRP may be closed out, and emergency response capability may be reduced to appropriate levels. Further, the installation and intermediate headquarters will take action to terminate agreements with external agencies supporting the former chemical agent mission.

d. Termination of the chemical agent mission does not abrogate the responsibility of such installations or facilities to maintain a safety program commensurate with remaining missions. In addition, these installations or facilities will continue to comply with chemical event reporting requirements (see chap 11).

Appendix A
References

Section I
Required Publications

AR 40–5
Preventive Medicine. (Cited in para 1–4q(10).)

AR 190–11
Physical Security of Arms, Ammunition, and Explosives. (Cited in para 12–3d.)

AR 190–59
Chemical Agent Security Program. (Cited in Summary and paras 6–4a, and 9–1.)

AR 360–5
Public Information. (Cited in paras 7–9e(4) and 11–5e.)

AR 380–67
The Army Personnel Security Program. (Cited in paras 2–8c, 2–14a, and 2–25a.)

AR 380–86
Classification of Chemical Warfare and Chemical and Biological Defense Information and NBC Survivability. (Cited in paras 7–7a, 7–12b, and 11–3a(7).)

AR 385–40
Accident Reporting and Records. (Cited in paras 5–2h, 11–6a, and 11–6b.)

AR 385–61
The Army Chemical Agents Safety Program. (Cited in paras 6–3a, 8–1, 11–2a(4), 11–2b(2), 11–2b(3), 11–2c(4), and 12–3c.)

AR 385–64
U.S. Army Explosives Safety Programs. (Cited in para 12–3c.)

AR 600–85
Alcohol and Drug Abuse Prevention Program. (Cited in paras 2–15b(1), 2–16, 2–24a, and 6–2b(2).)

AR 680–29
Military Personnel, Organization, and Type of Transaction Codes. (Cited in paras 2–3j, 2–29f, and 2–30d(3).)

DA Pam 40–8
Occupational Health Guidelines for the Evaluation and Control of Occupational Exposure to Nerve Agents GA, GB, GD and VX. (Cited in paras 2–5d(6), 8–1a, and 8–3.)

DA Pam 40–173
Occupational Health Guidelines for the Evaluation and Control of Occupational Exposure to Mustard Agents H, HD, and HT. (Cited in paras 2–5d(6), 8–1a, and 8–3.)

DA Pam 50–6
Chemical Accident or Incident Response and Assistance (CAIRA) Operations. (Cited in paras 1–4n(12), 1–4n(13), 1–4p(2), 1–4q(8), 1–4q(11), 1–4w(2), 7–9e(4), 7–13c, 10–1, 10–2a(1), 10–2a(2), and 11–4b.)

DA Pam 385–61
Toxic Chemical Agent Safety Standards. (Cited in paras 6–3a, 8–1, 12–3a, 12–3c, and 14–3a(3).)

DOD 4160.21–M–1
Defense Demilitarization Manual. (Cited in para 5–5b(1).)

DOD 4500.9–R
Defense Transportation Regulation. (Cited in paras 7–3, 7–8b, 7–8c, 7–8e, and 7–13b(1).)

40 CFR 266
(Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities (Cited in para 12–4c.)

40 CFR 302
Designation, Reportable Quantities, and Notification. (Cited in para 11–3a(2).)

49 CFR
Transportation (Cited in para 12–4c.)

42 USC 9601–9675
Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). (Cited in paras 12–4a 12–4b, and 12–5a(4).)

42 USC 6901–6991h
Resource Conservation and Recovery Act (RCRA). (Cited in paras 12–4a, 12–4b, and 12–5a(4).)

50 USC
War and National Defense (Cited in paras 7–3 and 12–6.)

Section II
Related Publications

A related publication is merely a source of additional information. The user does not have to read it to understand this publication.

AR 10–16
U.S. Army Nuclear and Chemical Agency

AR 11–34
The Army Respiratory Protection Program

AR 15–6
Procedures for Investigating Officers and Boards of Officers

AR 20–1
Inspector General Activities and Procedures

AR 27–60
Intellectual Property

AR 40–13
Medical Support – Nuclear/Chemical Accidents and Incidents

AR 40–66
Medical Record Administration and Healthcare Documentation

AR 40–400
Patient Administration

AR 50–5
Nuclear Surety

AR 55–228
Transportation by Water of Explosives and Hazardous Cargo

AR 71–32
Force Development Documentation–Consolidated Policies

AR 75–15
Responsibilities and Procedures for Explosive Ordnance Disposal

AR 95–1
Flight Regulations

AR 95–27
Operational Procedures For Aircraft Carrying Hazardous Materials

AR 190–14
Carrying of Firearms and Use of Force for Law Enforcement and Security Duties.

AR 190–40
Serious Incident Report

AR 195–2
Criminal Investigation Activities

AR 200–1
Environmental Protection and Enhancement

AR 200–2
Environmental Effects of Army Actions

AR 380–5
Army Information Security Program

AR 381–12
Subversion and Espionage Directed against the U.S. Army (SAEDA)

AR 381–20
The Army Counterintelligence Program

AR 385–10
Army Safety Program

AR 385–14
Transportation Accident Prevention and Emergency Response Involving Conventional Munitions and Explosives

AR 420–90
Fire and Emergency Services

AR 500–60
Disaster Relief

AR 523–13
Antiterrorism Force Protection: Security of Personnel, Information, and Critical Resources

AR 600–8–11
Personnel–General, Reassignment

AR 600–8–23
Standard Installation/Division Personnel System (SIDPERS) Database Management

AR 600–8–104
Military Personnel Information Management/Records

AR 700–19
U.S. Army Munitions Reporting System

AR 710–2
Inventory Management Supply Policy Below the Wholesale Level

AR 735–5
Policies and Procedures for Property Accountability

AR 740–26
Physical Inventory Control

AR 740–32
Responsibilities for Technical Escort of Dangerous Materials

DA Pam 385–64
Toxic Chemical Agent Safety Standards

DA Pam 600–8–1
Standard Installation/Division Personnel System (SIDPERS): Battalion S1 Level Procedures

DA Pam 600–8–2
Standard Installation/Division Personnel System (SIDPERS): Personnel Service Center Level Procedures

DA Pam 600–8–23
Standard Installation/Division Personnel System (SIDPERS) Database Management Procedures

DA Pam 738–750
Functional Users Manual for the Army Maintenance Management System (TAMMS)

DOD 4500.32–R
MILSTAMP Transportation Account Codes (TACs) Volume 2

DOD 5200.2–R
Department of Defense Personnel Security Program

DOD 5220.22–M
Industrial Security Manual for Safeguarding Classified Information

DOD 5220.22–R
Industrial Security Regulation

DOD 6055.9–STD
Ammunition and Explosive Safety Standards

DODD 5160.65
Single Manager for Conventional Ammunition

DODD 5210.42
Nuclear Weapons Personnel Reliability Program

DODD 5210.65
Chemical Agent Security Program

FM 3–21
Chemical Accident Contamination Control

FM 8–285
Treatment of Chemical Agent Casualties and Conventional Military Chemical Injuries

SB 3–30
Chemical Materiel (Other than Class V) Storage Serviceability Standard

SB 3–30–2
Chemical–Biological Canisters and Filter Elements: Serviceability Lists

SB 742–1
Inspection of Supplies and Equipment Ammunition Surveillance Procedures

TB 5–4200–200–10
Hand Portable Fire Extinguishers Approved for Army Users

TB MED 502
Occupational and Environmental Respiratory Protection Program

TM 38–250
Preparing Hazardous Materials for Military Air Shipment

TM 43–0001–26–1
Army Equipment Data Sheets; Chemical Defense Equipment

TM 43–0001–26–2
Army Equipment Data Sheets; Chemical Weapons and Munitions

Convention on the Prohibition of the Development, Production, Stockpiling, and Use of Chemical Weapons, and their Destruction (Chemical Weapons Convention)
(found at www.state.gov/www/global/arms/treaties/cwctext.html)

29 CFR 1900–1999
Occupational Safety and Health Administration, Department of Labor

FAR
Federal Acquisition Regulation

DFARS
Defense Federal Acquisition Regulation Supplement

AFARS
Army Federal Acquisition Regulation Supplement

Section III
Prescribed Forms

Except where otherwise indicated below, the following forms are available as follows: DA forms are available on the Army Electronic Library (AEL) CD–ROM (EM 0001) and the USAPA Web site (www.usapa.army.mil); DD forms are available from the OSD Web site (http://web1.whs.osd.mil/icdhome.htm).

DA Form 3180
Personnel Screening and Evaluation Record. (Prescribed in para 2–17.)

DA Form 4515
Personnel Reliability Program Record Identifier. (Prescribed in para 2–20.) Available through normal forms supply channels.

DA Form 7422
Annual Personnel Reliability Program (PRP) Status Report. (Prescribed in para 2–34.)

DA Label 164
Nuclear/Chemical Personnel Record Label. (prescribed in para 2–19.) Available through normal forms supply channels.

Section IV
Referenced Forms

DA Form 2–1
Personnel Qualification Record–Part II

DA Form 11–2–R
Management Control Evaluation Certification Statement

DA Form 873
Certificate of Clearance and/or Security Determination

DA Form 4508
Ammunition Transfer Record. Available through normal forms supply channels

DD Form 626
Motor Vehicle Inspection (Transporting Hazardous Materials)

DD Form 1911
Materiel Courier Report

FBI Form FD Form 258
Applicant Fingerprint Card. Available through normal forms supply channels.

SF 86
Questionnaire for National Security Positions

SF 85P
Questionaire for Position of Public Trust

SF 600
Health Record–Chronological Record of Medical Care

Appendix B
Designation of Chemical Agents and Categories

B–1. Introduction

This appendix lists and categorizes the specific chemical agents that are controlled under the Army Chemical Surety Program. Items listed in Table B–1 are also covered by Schedule 1 of the Chemical Weapons Convention.

B–2. Categories of chemical agent

a. Category I. Chemical agent material as components of weapon systems which contain munitions or explosives, are in bulk form, or contained in binary chemical munitions loaded with both components as specified below.

(1) Rockets.

(2) Land mines.

(3) One ton containers (nerve agents).

(4) Projectiles and mortars.

(5) Bombs.

(6) Binary unions or intermediates with both components uploaded or located together.

(7) Other chemical agents as components of chemical weapons that contain explosives.

(8) Chemical agent filled spray tanks.

b. Category II. All other chemical agent material including bulk non–nerve agents stored in one–ton containers less those items described below.

c. Category III.

(1) All RDTE dilute solutions that exceed the chemical surety threshold levels in Table 6–1, chapter 6.

(2) All neat research chemical agent levels that exceed the chemical surety threshold levels in Table 6–2, chapter 6.

(3) Experimental chemical agent in excess of one liter authorized for use in RDTE projects, surveillance programs, or intelligence evaluations.

B–3. Non–surety chemical material

The following chemical agents listed in paragraph B–2, due to their relative non–lethal characteristics, are considered not within the scope of the Army Chemical Surety Program when configured or stored as listed:

a. Binary component precursors when stored separately.

b. Neat chemical agents in quantities not exceeding threshold quantities. (See chap 6, table 6–2.)

c. Chemical agents diluted to concentrations considered RDTE dilute solutions (see chap 6, table 6–1).

d. Experimental chemical agents in quantities not to exceed 1 liter.

e. Material contaminated with unrecoverable chemical agents (for example contaminated soil/earth, ground water, neutralist, filters, and wood).

f. Neutralant generated by chemical neutralization processes if the material has a concentration of less than 1 mg/ml for all nerve agents and less than 5mg/ml for all mustard agents (the most restrictive concentration standards listed in table 6–1)

g. Inaccessible/non–recoverable chemical agents that are in storage tanks and transfer pipes in demilitarization processing systems.

h. RCWM excepted as identified in chapter 12.

B–4. Supplemental guidance

a. Industrial chemicals formerly used as fills for chemical weapons are not considered chemical agents under the scope of the Army Chemical Surety Program and will be controlled consistent with industrial safety practices.

b. Munitions filled with industrial chemicals are not considered as chemical agents or chemical weapons under the Army Chemical Surety Program.

Table B–1
Specific Chemical Agents/Precursors/Toxins

No.	A. Chemical Agents	CAS Registry Number
(1)	O–Alkyl (C10, incl. Cycloalkyl) alkyl	
	(Me, Et, N–Pr or I–Pr)–phosphonofluoridates	
	e.g. Sarin; O–Isopropyl methylphosphonofluoridate	107–44–8
	Soman; O–Pinalcolyl methylphosphonofluoridate	96–64–0
(2)	O–Alkyl (C 10, incl. Cycloalkyl) N, N–dialkyl	
	(Me, Et, N–Pr or I–Pr) phosphoramidocyanidates	
	e.g. Tabun: O–Ethyl N, N–dimethyl phosphoramidocyanidate	77–81–6
(3)	O–Alkyl (H or C 10, incl. Cycloalkyl) S–2–dialkyl	
	(Me, Et, N–Pr)–aminoethyl alkyl	
	(Me, Et, N–Pr or I–Pr) phosphonothiolates and corresponding alkylated or protonated salts	
	e.g. VX; O–Ethyl S–2–diisopropylaminoethyl methyl phosphonothiolate	50782–69–9
(4)	Sulfur mustards	
	2–Chloroethylchloromethylsulfide	2625–76–5
	Mustard gas; Bis(2–chloroethyl)sulfide	505–60–2
	Bis(2–chloroethylthio)methane	63869–13–6
	Sesquimustard; 1,2 Bis(2–chloroethylthio)ethane	3563–36–8
	1,3–Bis(2–chloroethylthio)–n–propane	63905–10–2
	1,4–Bis(2–chloroethylthio)–n–butane	not assigned
	1,5–Bis(2–chloroethythio)–n–pentane	not assigned
	Bis(2–chloroethylthiomethyl)ether	63918–90–1
	Q–Mustard: Bis(2–chloroethylthioethyl)ether	63918–89–8
(5)	Lewisites	
	Lewisite 1: 2–Chlorovinyldichlorarsine	541–25–3
	Lewisite 2: Bis(2–chlorovinyl)chloroarsine	40334–69–8
	Lewisite 3: Tris(2–chlorovinyl)arsine	40334–70–1
(6)	Nitrogen mustards	
	HN1: Bis(2–chloroethyl)ethylamine	538–07–8
	HN2: Bis(2–chloroethyl)methlyamine	51–75–2
	HN3: Tris(2–chloroethyl)amine	555–77–1
	B. Precursors	
(7)	Alkyl (Me, Et, n–Pr or I–Pr) phosophonyldifluorides	
	e.g. DF; Methylphosphonyldifluoride	676–99–3
(8)	O–Alkyl (H or C 10, incl. Cycloalkyl) O–2–dialkyl	
	(Me, Et, n–Pr or I–Pr)–aminoethyl alkyl	
	(Me, Et, n–Pr or I–Pr) phosphonites and corresponding adkylated or protonated salts	

Table B–1
Specific Chemical Agents/Precursors/Toxins—Continued

	e.g. QL: O–Ethyl O–2–diisopropylaminoethyl methylphosphonite	57856–11–8
(9)	Chlorosarin: O–Isopropyl methylphosphonochloridate	11445–76–7
(10)	Chlorosoman: O–Pinacolyl methylphosphonochloridate	7040–57–5
	C. Toxins	
(1)	Saxitoxin	35523–89–8
(2)	Ricin	9009–86–3

Appendix C
Management Control Evaluation Checklist

C–1. Function.
The function covered by this checklist is the Chemical Surety Program.

C–2. Purpose.
The purpose of this checklist is to assist DAIG inspection personnel in evaluating key management controls in the course of Chemical Surety Inspections (CSI) or Limited Scope Surety Inspections (LSSI). It is not intended to cover all controls.

C–3. Instructions.
Answers must be based on the actual testing of management controls (for example document analysis, direct observation, interviewing, sampling, simulation, other). Answers that indicate control problems must be explained and corrective action indicated in supporting documentation. These controls will be evaluated per the annual schedule for CSI/LSSI published by DAIG. Inspected organizations will update their Management Control Plans to reflect any such scheduled CSI/LSSI that involve their chemical surety activities. Certification that this management control evaluation has been conducted must be accomplished on DA Form 11–2–R (Management Control Evaluation Certification Statement). The final report from the CSI/LSSI may be attached to the DA Form 11–2–R as supporting documentation (for example, for any management control deficiencies noted and corrective actions recommended/taken).

C–4. Test Questions.
The key management controls to be evaluated are those management controls involved in the functional areas selected for assessment in the CSI/LSSI, to include mission operations, safety, security, surety management, emergency response, external support and/or disposal facilities. Additional guidance on the CSI/LSSI process is provided in chapter 13.

C–5. Supersession.
This checklist supersedes the checklist for AR 50–6, Chemical Surety, 1 February 1995. For assistance in responding to questions, contact the functional proponent.

C–6. Comments.
Help make this a better tool for evaluating management controls. Submit comments to the functional proponent: HQDA ODCSOPS, ATTN: DAMO–SSD, 400 Army Pentagon, Washington, DC 20310–0400.

Glossary

Section I
Abbreviations

AEL
airborne exposure limit

AIDS
Acquired–Immune Deficiency Syndrome

AMC
U.S. Army Materiel Command

AOC
Army Operations Center

ARSTAF
Army staff

ASA(I&E)
Assistant Secretary of the Army (Installations and Environment)

ASAP
Army Substance Abuse Program

CAI
chemical accident/incident

CAIRA
chemical accident or incident response and assistance

CCF
U.S. Army Central Personnel Clearance Facility

CDPR
Chemical Duty Position Roster

CDR
Commander–

CERCLA
Comprehensive Environmental Response, Compensation and Liability Act

CMA
Competent Medical Authority

CME
chemical management evaluation

COCO
contractor–owned, contractor–operated

CONUS
continental United States

COR
contracting officer's representative

CSEPP
Chemical Stockpile Emergency Preparedness Program

CSI
chemical surety inspection

CWC
Chemical Weapons Convention

DAIG
Department of the Army Inspector General

DCSINT
Deputy Chief of Staff for Intelligence

DCSLOG
Deputy Chief of Staff for Logistics

DCSOPS
Deputy Chief of Staff for Operations and Plans

DCSPER
Deputy Chief of Staff for Personnel

DDESB
Department of Defense Explosives Safety Board

DF
chemical agent symbol for the binary precursor methylphosphonic difluoride

DOD
Department of Defense

DOMS
Director of Military Support

DOT
Department of Transportation

DSS
Defense Security Service

ENTNAC
entrance national agency check

EOD
explosive ordnance disposal

EPA
Environmental Protection Agency

EPSQ
Electronic Personnel Security Questionnaire

FEMA
Federal Emergency Management Agency

FORSCOM
U.S. Army Forces Command

GB
chemical agent symbol for the nerve agent sarin

GB2
chemical agent symbol for binary GB

GOCO
government–owned, contractor–operated

HIV
Human Immunodeficiency Virus

HQDA
Headquarters, Department of the Army

IDS
Intrusion detection system

IG
Inspector General

IOP
Internal operating procedure

IRF
initial response force

LSSI
limited scope surety inspection

MACOM
major Army command

MEDCOM
U.S. Army Medical Command

MOS
military occupational specialty

MOU
memorandum of understanding

MPRJ
military personnel records jacket, U.S. Army

NAC
national agency check

NCP
National Contingency Plan

NICP
National inventory control point

NM
chemical agent symbol for the binary precursor dimethylpolysulfide

OCONUS
outside continental United States

ODCSOPS
Office of the Deputy Chief of Staff for Operations and Plans

OJT
on–the–job training

OMC
operating maintenance contractor

OMPF
official military personnel file

OPA
chemical agent symbol for the binary precursor isopropyl alcohol with amine

OPF
official personnel folder

OSC
On–Scene Coordinator

PDI
potentially disqualifying information

PR
periodic reinvestigation

PRP
personnel reliability program

PRPAS
personnel reliability program assignment status

PSI
personnel security investigation

QL
chemical agent symbol for the binary precursor O,O'–ethyl (2–isopropyl amino ethyl) methylphosphonite

RCRA
Resource Conservation and Recovery Act

RCWM
recovered chemical warfare material

RDA
research, development and acquisition

RDTE
research, development, test, and evaluation

REPSHIP
reports of shipment

ROTC
Reserve Officers Training Corps

SARA
Superfund Amendments and Reauthorization Act of 1986

SBCCOM
U.S. Army Soldier and Biological Chemical Command

SOP
standing operating procedure

SRF
service response force

SSN
social security number

TEO
technical escort officer

TEU
U.S. Army Technical Escort Unit

TIG
The Inspector General

TRADOC
U.S. Army Training and Doctrine Command

TSG
The Surgeon General

USANCA
U.S. Army Nuclear and Chemical Agency

USAR
U.S. Army Reserve

VX
chemical agent symbol for the nerve agent VX

VX2
chemical agent symbol for binary VX

Section II
Terms

Access
Close physical proximity to a chemical agent in a container or munitions under circumstances that could provide an opportunity to acquire, release, tamper with, damage, or come in direct contact with chemical agents. A person is not considered to have access if escorted and/or is under observation by least two PRP certified individuals capable of detecting unauthorized or incorrect actions.

Accessible form
Undiluted chemical agent in surety quantities that has not been decontaminated or neutralized, and that could possibly be removed for unauthorized purposes. Includes chemical agents in munitions, in bulk, in laboratory containers, or in any other recoverable form.

Accountability
The obligation to keep accurate records of property, documents, or funds. Accountability is concerned primarily with records and does not necessarily imply actual possession.

Active service
For assignment to the PRP, active service includes active duty in the U.S, military, continuous Federal service or full–time support personnel to Reserve components as defined in DODD 1205.18. For PRP purposes, the following apply:

a. An interruption in active military service of over 24 months constitutes a break in service. Service other than that

described above in the Armed Forces Reserve or National Guard components does not constitute active service, even though active duty periods for training or other temporary service of less than 180 days may occur.

b. Assignment as a midshipman or cadet at the Military, Naval, Air Force, or Coast Guard academy is considered active service for PRP purposes.

c. Assignment as a Reserve Officers Training Corps, Merchant Marine Academy, and Maritime Academy cadet or midshipman is not considered to be active service.

Administrative (levy) screening

For a person on orders directing reassignment to a PRP position, a determination by the losing organization that the person is suitable/unsuitable to perform PRP duties.

Administrative termination

An action taken to remove an individual from the PRP when the individual transfers from a duty position requiring PRP certification to one that does not.

Airborne exposure limit (AEL)

Allowable concentrations in the air for occupational, general population exposures, and source emissions limits. (See AR 385–61 for specific limits.)

Alcohol abuse

The use of alcohol to an extent that it has an adverse effect on the user's health or behavior, family, community, or the Department of Defense, or leads to unacceptable behavior as evidenced by one or more acts of alcohol–related misconduct and/or the illegal use of such substances. Alcohol abuse may include a professional diagnosis as being alcohol dependent or an alcohol abuser, or evidence of alcohol abuse through alcohol–related incidents.

Alcohol–related incident

Any substandard behavior or performance in which the consumption of alcohol by the individual is a contributing factor as determined by the certifying official with consultation from the CMA (such as intoxicated driving, domestic disturbances, assault, disorderly conduct, personal injury, failure to go to prescribed alcohol abuse counseling, or voluntary consumption of alcohol by an individual previously diagnosed as alcohol dependent).

Binary precursors

The chemicals that combine to produce binary chemical agents. Examples of two common chemical agent ingredients are:

a. The precursors for binary GB (GB2) — methylphosphonic difluoride (DF) and isopropyl alcohol with an amine added (OPA).

b. The precursors for binary VX (VX2)—O, O'–ethyl (2 diisopropyl aminoethyl) methylphosphonite (QL) and dimethylpolysulfide (NM).

Binary munitions components

The parts that form binary munitions and contain binary precursors. When assembled, they become Category I chemical agent material under the Army Chemical Surety Program.

a. Critical component–the binary component of a munition (M20 DF Canister, BLU–80/B Bomb Body, XM277 Injector Assembly) that contains the less common chemical that is the essential ingredient for the formation of the lethal chemical agent.

b. Non–critical component–the binary component (M21 OPA Canister, MXU–695/B Ballonet, MLRS Rocket Pod) that contains the more common chemical used in a binary munition.

Binary chemical munitions

Munitions designed to use two non–lethal chemicals that combine only during weapon functions to produce a chemical agent.

Certification

A determination by a certifying official that an individual meets the personnel reliability criteria established for assignment to a PRP position.

Certifying official

For military and Army civilian personnel, the commander or DOD military or civilian personnel responsible for chemical agent operations and having sufficient personal contact with all subordinate PRP personnel to permit continual evaluation of their performance and reliability. For Army contractor personnel, the Army COR designated by

the contracting officer is the certifying official. The certifying official certifies that personnel being considered for assignment to chemical duties meet the requirements of the PRP.

Chemical accident/incident (CAI)
Unintentional chemical events where chemical agent is released into the ambient atmosphere and either threatens unprotected personnel or has the potential to threaten unprotected personnel.

a. Chemical accident. An event resulting from non–deliberate acts where safety is of primary concern.
b. Chemical incident. An event resulting from deliberate acts (terrorism or criminal) where security is of concern.

Chemical agent
A chemical substance listed in appendix B that is intended for use in military operations to kill, seriously injure, or incapacitate a person through its physiological properties. Excluded from consideration are industrial chemicals, riot control agents, chemical herbicides, smoke, and flame.

Chemical agent accountable officer
That person designated to keep inventory records for chemical agents from creation to destruction.

Chemical agent material
Chemical agents, chemical weapons, or other substance or material contaminated with chemical agents. Chemical agent material is listed in appendix B.

Chemical agent operation
Any operation which involves chemical agents, including storage, shipping, handling, manufacturing, maintenance, test chamber activities, laboratory activities, surveillance, demilitarization, decontamination, disposal, and training.

Chemical duty positions
Duty positions that require routine access to chemical agent material, involve security of chemical agent material, or have a direct role in the conduct of chemical agent operations. Chemical duty positions are contained in paragraph 2–4a. Individuals assigned to chemical duty positions must be in the PRP.

Chemical event
A chemical event encompasses chemical agent material accidents, incidents and other circumstances where there is a confirmed or likely release to the environment, exposure of personnel, leaking munition, threat to the security of chemical agents, or incident of concern to the local commander. The anticipated response to a chemical event is the activation of all or select portions of the Initial Response Force (IRF), with possible Service Response Force (SRF) deployment, as necessary.

Chemical management evaluation (CME)
An evaluation conducted by the Inspector General or MACOM IG of chemical operations with inquiry into the chemical agent functions and responsibilities of staff agencies, inspection teams, major and intermediate command levels, and assistance teams to identify management, systemic, or functional problem areas in the Army Chemical Surety Program at any level.

Chemical surety
A system of control measures designed to provide protection to the local population, workers, and the environment by ensuring that chemical agent operations are conducted safely; that chemical agents are secure; and that personnel involved in those operations meet the highest standards of reliability.

Chemical surety inspection (CSI)
An inspection of Army organizations with chemical agent surety missions, conducted by the Inspector General, to determine their capability to accomplish chemical agent missions in a safe and secure environment through examination of the following functional areas: mission operations, safety, security, surety management, and accident/incident control.

Chemical weapon
A munition filled with chemical agent manufactured for the purpose of conducting chemical warfare.

Competent medical authority (CMA)
A U.S. military medical officer, or a U.S. civilian physician employed by, or under contract to, the U.S. Government, responsible for providing medical services or clinical evaluation and who is authorized by the medical treatment facility commander or director and is trained in the requirements of the PRP. A medical officer for PRP evaluation purposes

refers to a physician, physician's assistant, or nurse practitioner. Physicians assistants or nurse practitioners must be supervised by an individual licensed to practice medicine.

Complementary binary precursors
Both the critical and non–critical precursors of a binary chemical agent (such as DF and OPA, or QL and NM).

Continuing evaluation
The process by which a PRP–certified individual is observed for compliance with reliability standards. This is an on–going process that considers duty performance, and on and off duty behavior and reliability on a consistent and frequent basis.

Contracting office or agency
The organization that has primary responsibility for awarding, monitoring administering, and ensuring compliance with a contract.

Critical binary processors
DF and QL (see binary precursors).

Custody
Responsibility for the control of, transfer and movement of, and access to chemical agent material. Custody may or may not include accountability.

Decontamination
The process of decreasing the amount of chemical agent on any person, object, or area by absorbing, neutralizing, destroying, ventilating, or removing chemical agents.

Deficiency
A variance from prescribed procedures or criteria prescribed in technical manuals or other applicable regulations or publications.

Demilitarization
The mutilation, destruction, or neutralization of chemical agent material, rendering it harmless and ineffectual for military purposes.

Dilute solution
Chemical agents that have been reduced in strength (less than neat) by admixture (dilution). (See RDTE dilute solution.)

DOD Personnel
Active duty military personnel, full–time support personnel to Reserve components, civilian employees of the Department of Defense or, for PRP purposes, DOD contractors and their employees.

Drug abuse
The wrongful use, possession, distribution, or introduction onto a military installation of a controlled substance, prescription medication, over–the–counter medication, or intoxicating substance (other than alcohol). (Wrongful means without legal justification or excuse, and includes use contrary to the directions of the manufacturer or prescribing health care provider, and use of any intoxicating substance not intended for human ingestion (for example glue and gasoline fumes sniffing)).

Emergency disposal
Immediate transportation and treatment or destruction of chemical agents or munitions when the senior explosive ordnance disposal person determines the health or safety of any person is clearly endangered. Emergency treatment operations will be conducted per the EPA Military Munitions Rule (40 CFR 260).

Engineering Controls
A device, room, or structure supported by a mechanical toxic exhaust system, that provides containment of chemical agent vapor and/or liquid and prevents migration of the chemical agent hazard to immediate/adjacent areas or the environment.

Entrance National Agency Check (ENTNAC)
A personnel security investigation (PSI) consisting of a records review of certain National agencies. It is similar to a

National Agency Check (NAC), except that the check at the Federal Bureau of Investigation Identification Division consists of a name check only rather than a detailed technical fingerprint search. An ENTNAC is started on each first–term military enlistee entering military service.

Exclusion area
A designated area immediately surrounding one or more receptacles in which chemical agents are contained. Normally, the boundaries of an exclusion area are the walls, floor, and ceiling of a storage structure, secure container, or a barrier that establishes the boundary of the exclusion area (such as an igloo or a fence). The inside of a chemical agent secure container is an exclusion area. In the absence of positive preventive measures, access into the exclusion area constitutes access to chemical agents.

Experimental chemical agents
Chemical substances being tested, developed, or altered for chemical defense purposes which:
a. Will be used solely by the military.
b. Have toxicity's equal or greater than current nerve or mustard agents.

Explosive ordnance disposal (EOD)
The detection, identification, field evaluations, rendering safe, recovery, and final disposal of unexploded explosive ordnance or munitions.

Exposure/exposed worker
a. An exposed worker is an individual who–
(1) Exhibits clinical signs or symptoms of nerve agent intoxication.
(2) Has cholinesterase depression consistent with nerve agent effect.
(3) Exhibits clinical signs or symptoms of mustard or lewisite effects.
b. A potentially exposed worker is an individual who works in an agent operating area where levels or nerve, lewisite, or mustard which:
(1) Exceeds the protective capability of the personal protective equipment (PPE).
(2) Are detectable and there is a breach in PPE or engineering controls.

Factor affecting operations
A situation, condition, or deficiency that may or may not be attributable to the inspected organization but significantly affects the organization's ability to perform its chemical surety mission. It may pertain to such matters as command guidance; the adequacy of support; the availability or condition of facilities; the status of personnel, equipment, materiel, maintenance, or training; the provision of a safe and secure environment for chemical agent material or the capability to adequately respond to a chemical accident/incident.

Health Records (HREC)
Combined, the treatment record and dental record

Industrial chemical
Chemicals developed or manufactured for use in industrial operations or research, by industry, government, or academia. These chemicals are not manufactured primarily for the specific purpose of producing human casualties or rendering equipment, facilities, or areas dangerous for use by man. Hydrogen cyanide (AC), cyanogen chloride (CK), and phosgene (CG) are considered industrial chemicals.

Initial response force (IRF)
An emergency action organization tasked to provide first response to a chemical accident/incident at an installation assigned a chemical agent mission or in the public domain. Under the command of the installation commander or the commander of the nearest Army installation, the IRF is composed of command and control elements and emergency teams capable of providing emergency medical services and initiating those actions necessary to prevent, minimize, or mitigate hazards to public health and safety or to the environment.

Interim certification
Same as "certification," except performance of duty is subject to the restrictions of paragraph 2–13b pending receipt of the results of a new personnel security investigation.

Intrusion detection system
A security system consisting of one or more sensors capable of detecting one or more types of phenomena, signal

media, annunciates, and energy source for signaling the entry or attempted entry of a person or other target into the area protected by the system.

Leaker
Munitions or overpack container from which chemical agent escapes.

Leaking munitions
Munitions from which there has been a confirmed detection of chemical agent outside the munition body or bulk storage container.

Limited area
The area immediately surrounding one or more exclusion areas. Normally, the area between the boundaries of the exclusion areas and the perimeter boundary (such as the inner fence at a storage depot or inside of a laboratory room where chemical agent material is stored in chemical secure containers).

Limited scope surety inspection (LSSI)
An Army or MACOM IG conducted inspection that evaluates the surety program of organizations directly supporting the Army Chemical Surety Program.

Most probable event (MPE)
The worst potential mishap most likely to occur during routine handling, storage, maintenance, or surveillance operations, which results in the release of chemical agent and exposure of personnel.

National Agency Check (NAC)
A personnel security investigation (PSI) consisting of records reviews of certain National agencies. As a minimum, it includes checks of the Defense Clearance and Investigation Index, the FBI Headquarters, and FBI Identification Division. A technical fingerprint search of the FBI's files is started as part of a NAC. If the fingerprint is not classifiable, a "name check only" of those files is conducted.

National Agency Check Plus Written Inquiries with Credit Check (NACICC)
A personnel security investigation (PSI) conducted by the Office of Personnel Management that combines a NACICC with credit checks

National Agency Check Plus Written Inquiries (NACIC)
A personnel security investigation (PSI) conducted by the Office of Personnel Management that combines a NAC with written inquiries to law enforcement agencies, former employers, and supervisors, references, and schools.

National Defense Area
An area established on non–Federal lands located within the United States, its possessions or territories for the purposes of safeguarding classified defense information or protecting DOD equipment or material.

National Response Center
A joint Environmental Protection Agency and U.S. Coast Guard communications center that takes the legally required reports of oil or hazardous substance spills/releases at or above the reportable quantities and communicates these to the pre–designated on–scene coordinator for action.

Neat agent equivalent
The actual volume of chemical agents that will be formed when two separate volumes of the agent's precursors are mixed. The resulting chemical agent is deemed to be pure for purposes of accountability and for determining storage limits.

Neat chemical agent
A nondiluted, full–strength (as manufactured) chemical agent. A chemical agent manufactured by the binary synthesis route is also considered a neat agent regardless of purity. (See table 6–2 and appen B.)

Neat research chemical agent
Chemical agents listed in appendix B used for research and development in small quantities. (See table 6–2 and appen B for specific quantities.)

Neutralant
Those materials remaining from the chemical neutralization of chemical agent.

Neutralization
The act of altering chemical, physical, and toxicological properties to render the chemical agent ineffective for use as intended.

Non–surety chemical material
Chemical agents with relatively non–lethal characteristics not considered within the scope of the Army Chemical Surety Program.

Off–post
The area outside the boundaries of a military installation or facility.

Off–site
The area surrounding the on–site area.

On–scene coordinator (OSC)
The Federal official predestinated by the Environmental Protection Agency or the U.S. Coast Guard to coordinate and direct Federal responses under subpart D of the National Contingency Plan (NCP), or the official designated by the lead agency to coordinate and direct removal actions under subpart E of the NCP. DOD is included as OSC under subpart E. The IRF or SRF commander is the Army OSC for a chemical accident/incident.

On–post
A military installation or facility.

On–site
An area around the scene of a chemical accident/incident under operational control of the OSC, technical escort officer, or the commander of the initial response force or service response force. It includes any area established as a National Defense Area.

Operations security
The protection of military operations and activities resulting from the identification and subsequent elimination or control of intelligence indicators (vulnerabilities) that are susceptible to hostile exploitation by an adversary.

Periodic reinvestigation (PR)
An investigation conducted at specified intervals for updating a previously completed personnel security investigation.

Personnel security investigation (PSI)
Any investigation required for determining the eligibility of DOD military or civilian personnel and contractor employees for access to classified information, acceptance, or retention in the Armed Forces, or assignment to, and retention in, sensitive duties.

Permanent disqualification
An action taken based on the receipt of disqualifying information to remove from the PRP an individual who has been screened and certified into the PRP or to terminate the PRP screening process of an individual being considered for assignment to PRP duties.

Personal protective equipment (PPE)
Protective clothing and equipment used to protect an individual from the effects of chemical agents.

Potentially disqualifying information (PDI)
Any information regarding, but not limited to, a person's physical, mental, emotional status, conduct or character, on–and off–duty, which may cast doubt about an individual's ability or reliability to perform chemical duties.

Primary engineering controls
The device, room or structure immediately surrounding the agent source that provides the primary protection to the workers from the chemical agent hazard and is under negative pressure relative to the location of unprotected workers. Examples of primary controls are hoods, gloveboxes, or rooms under negative pressure relative to the adjacent vestibule, corridor, or room.

PRP administration official
A contractor employed in a supervisory position and approved by the contracting officer's representative to facilitate the management of the PRP at the contractor facility, by performing duties normally performed by the certifying official except for the decision making functions of determining PRP suitability and disqualifying personnel from the PRP. This individual is required to be in the PRP.

PRP monitor
An individual appointed by the certifying official to assist in the day–to–day administrative functions of the PRP.

Random testing
A program of testing where the selection of personnel for substance abuse testing is based on a random opportunity to be tested and is not imposed based on events about a particular individual. Random testing may be either testing of designated individual occupying a specified area, element, or position, or random testing of those individuals based on a neutral criterion, such as a digit of the SSN.

Recovered chemical warfare material (RCWM)
Chemical agent material and/or associated equipment and surrounding contaminated media discovered either by chance or during deliberate real estate recovery/restoration operations that was used for its intended purpose or previously disposed of as waste. RCWM will be classified based on the requirements of 40 CFR 266 Subpart M (EPA Military Munitions Rule). RCWM does not fall within the scope of the Army Chemical Surety Program except as detailed in chapter 12.

Reportable quantities
For any CERCLA hazardous substance, the reportable quantity established in table 302.4 of 40 CFR, Part 302, for such substance; for any other substances, the reportable quantity is one pound. (For chemical agents it is 1 pound.)

Research chemical agent
Chemical agents used for the purposes of research, development, acquisition, and testing. These include RDTE dilute solutions, experimental chemical agents, and neat chemical agents.

RDTE dilute solution
Solutions of chemical agents in concentrations and quantities reduced by admixture (dilution) to levels that present significantly reduced hazards. (See table 6–1 and appen b.)

RDTE surveillance and training quantity
A quantity of chemical agent which is required for authorized RDTE projects, for specific surveillance programs to obtain data concerning chemical agent material life cycle, or for scheduled training purposes.

Reviewing official
The commander, or designated DOD military or civilian official, at a level immediately above that of the certifying official, who is responsible for operations involving chemical agents.

Schedule 1 Chemicals
Those chemicals listed in Schedule 1 of the Chemical Weapons Convention Schedule of Chemicals and other toxic chemicals or precursors that:

a. have been developed, produced, stockpiled or used as a chemical weapon;

b. otherwise pose a high risk to the object and purpose of the CWC by virtue of its high potential for use in activities prohibited under the CWC because one or more of the following conditions is met:

(1) It possesses a chemical structure closely related to that of other toxic chemicals listed in Schedule 1, and has, or can be expected to have comparable properties;

(2) It possesses such lethal or incapacitating toxicity as well as other properties that would enable it to be used as a chemical weapon; or

(3) It may be used as a precursor in the final technological stage of production of a toxic chemical listed in Schedule 1, regardless of whether this stage takes place in facilities, in munitions, or otherwise;

c. Have little or no use for purposes not prohibited under the CWC.

Secondary engineering controls
The area containing or adjacent to the primary engineering control that will prevent the further release or migration of chemical agent (to adjacent areas or the environment) if released from primary control. Examples of secondary controls

are the lab room in which a hood/glovebox is located or a corridor/observation vestibule adjacent to an agent storage/ operations room.

Service response force (SRF)
An Army–level emergency response organization, commanded by a general officer, capable of performing and sustaining the CAIRA mission. The SRF is composed of the initial reaction force (IRF) and follow–on forces consisting of a staff and specialized teams from various agencies and organizations involved in the response to and recovery from a chemical accident/incident.

Technical escort
Individuals technically qualified and properly equipped to accompany designated materiel, which requires a high degree of safety and security during shipment.

Temporary disqualification
An action taken to temporarily remove an individual from the PRP when the certifying official has information that could be expected to affect an individual's job performance or reliability.

Temporary exclusion area
The area immediately surrounding chemical agent material that has been removed from its secure container, storage structure, storage area, or other authorized storage configuration. In the absence of positive measures to prevent physical access by unauthorized persons, access to the temporary exclusion area constitutes access to chemical agents.

Two–person rule
A system designed to prohibit access by an individual to chemical agent by requiring the presence at all times of at least two authorized personnel, each capable of performing first aid in case of exposure to chemical agent or detecting incorrect or unauthorized procedures with respect to the task being performed. Each person must be familiar with applicable safety and security requirements.

Unsafe environment
A deviation from a safe environment that could cause a chemical accident/incident.

Section III
Special Abbreviations and Terms
This section contains no entries

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