Final

Site-Specific Safety and Health Plan Attachment
Drum Removal and Sampling at Range K,
Former Agent Training Area,
Parcel 203(7)
Fort McClellan, Calhoun County, Alabama

Prepared for:

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Prepared by:

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Task Order CK05
Contract No. DACA21-96-D-0018
IT Project No. 774645

June 2002

Revision 1

The following Safety and Health Plan (SHP) has been designed for the methods presently contemplated by IT Corporation (IT) for execution of the proposed work. Therefore, the SHP may not be appropriate if the work is not performed by or using the methods presently contemplated by IT.

In addition, as the work is performed, conditions different from those anticipated may be encountered and the SHP may have to be modified. Therefore, IT only makes representations or warranties as to the adequacy of the SHP for currently anticipated activities and conditions.

This Site-Specific Safety and Health Plan must be used in conjunction with the Installation-Wide Safety and Health Plan, Fort McClellan, Alabama.

Site-Specific Safety and Health Plan Attachment Approval
Fort McClellan, Calhoun County, Alabama

I have read and approve this site-specific safety and health plan attachment for the drum removal and sampling at Range K, Parcel 203(7), at Fort McClellan, Alabama, with respect to project hazards, regulatory requirements, and IT Corporation procedures.

_____ _____

Jeanne Yacoub, PE — Date
Project Manager

_____ _____

William J. Hetrick, CIH — Date
Health & Safety Manager

_____ _____

Jeff Tarr — Date
Site Coordinator

Acknowledgements

The approved version of this site-specific safety and health plan (SSHP) attachment for the drum removal and sampling at Range K, Parcel 203(7), at Fort McClellan, Alabama, has been provided to the site coordinator. I acknowledge my responsibility to provide the site coordinator with the equipment, materials, and qualified personnel to implement fully all safety requirements in this SSHP attachment. I will formally review this plan with the health and safety staff every 6 months until project completion.

Project Manager _____ Date _____

I acknowledge receipt of this SSHP attachment from the project manager, and that it is my responsibility to explain its contents to all site personnel and cause these requirements to be fully implemented. Any change in conditions, scope of work, or other change that might affect worker safety requires me to notify the project manager and the health and safety manager.

Site Coordinator _____ Date _____

Site-Specific Safety and Health Plan Acknowledgement Form

I have been informed of, and will abide by the procedures set forth in, this site-specific safety and health plan attachment for drum removal and sampling activities at Range K, Parcel 203(7), Fort McClellan, Alabama.

Printed Name	***Signature***	***Representing***	***Date***

Fort McClellan Gate Hours

Baltzell Gate	Baltzell Road. Open 24 hours daily, 7 days a week.
Galloway Gate	Galloway Road. Open 6 am to 6 pm Monday through Friday

Pelham Range Access Requirements

Pelham Range	IT personnel will contact the Range Control Office **each day** access is required to receive an access permit and available areas of entry. **See Attachment 1 for Range Control contact for Pelham Range**.

Fort McClellan Project Emergency Contacts

Range Control Office (Main Post) ..... (256) 848-6772
Fire Department (off post) 911
Ambulance (off post) 911
Regional Medical Center ..... (256) 235-5121
Military Police (SSG Busch) ..... (256) 848-5680, 848-4824
DOD Guard Force (Mr. Bolton) ..... (256) 848-5680, 848-4732
Anniston Police Department ..... (256) 238-1800
Chemical Agent Emergencies ..... (256) 895-1598
(Mike Smith, CEHNC) ..... cell phone (256) 759-3931
UXO Emergencies ..... (256) 895-1598
(Mike Smith, CEHNC) ..... cell phone (256) 759-3931
UXO Nonemergencies/Reporting Only (Ronald Levy) ..... (256) 848-6853
Baltzell Gate Guard Shack ..... (256) 848-5693, 848-3821
National Response Center & Terrorist Hotline ..... (800) 424-8802
Poison Control Center ..... (800) 222-1222
EPA Region IV ..... (404) 562-8725
Ronald Levy, BRAC Environmental Coordinator, FTMC Transition Force ..... (256) 848-6853
Lisa Kingsbury, FTMC Transition Force ..... (256) 848-7455
Ellis Pope, U.S. Army Corps of Engineers, Mobile District ..... (251) 690-3077
Phillip Stroud, Alabama Department of Environmental Management ..... (334) 270-5646
Doyle Brittain, EPA Region IV ..... (404) 562-8259
Ross McCollum, U.S. Army Corps of Engineers, Mobile District ..... (251) 690-3113
Mike Moore, Fort McClellan Safety Office ..... (256) 848-5433
Darryl Stabile, U.S. Army Corps of Engineers ..... (251) 690-2784
Jeanne Yacoub, IT Project Manager ..... (770) 663-1429
Jeff Tarr, IT Site Manager ..... (256) 848-3482, -3499
Bill Hetrick, IT H&S Manager ..... (865) 690-3211, and pager (888) 655-9529
Dr. Jerry H. Berke, Health Resources Occupational Physician ..... (800) 350-4511

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List of Acronyms

See Attachment 1, List of Abbreviations and Acronyms, in the site-specific field sampling plan contained in this binder.

1.0 Site Work Plan Summary

Project Objective. The objective of this work plan for Range K, Parcel 203(7), Fort McClellan (FTMC), Calhoun County, Alabama is to remove the partially buried drum and sample the soil in the excavation to confirm that no contaminants remain.

Project Tasks

- Sample drum contents
- Remove drum and contents for disposal
- Sample soil in drum excavation.

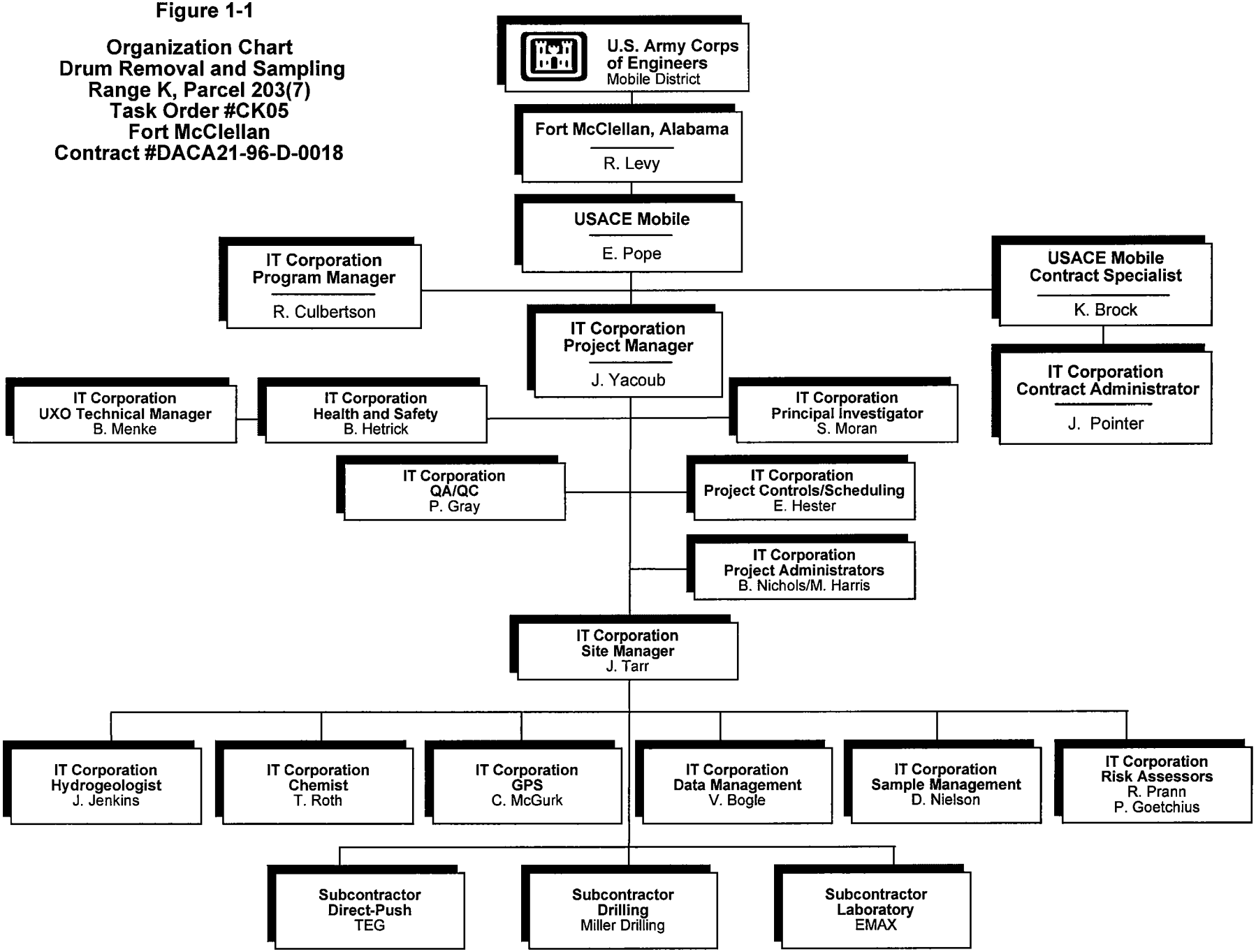
Personnel Requirements. Up to 10 employees. See Figure 1-1 for an organization chart.

Note: All personnel on this site shall have received training, informational programs, and medical surveillance as outlined in the installation-wide safety and health plan (SHP) for site investigations at FTMC, and be familiar with the requirements of this site-specific SHP (SSHP).

This SSHP must be used in conjunction with the SHP, FTMC, Alabama.

Figure 1-1

Organization Chart
Drum Removal and Sampling
Range K, Parcel 203(7)
Task Order #CK05
Fort McClellan
Contract #DACA21-96-D-0018



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2.0 Site Characterization and Analysis

2.1 Anticipated Hazards

The activity hazard analysis in Chapter 5.0 contains project-specific practices utilized to reduce or eliminate anticipated site hazards. The activity hazard analysis indicates specific chemical and physical hazards that may be present and encountered during each task from on-site operations. Below each task is a list of hazards and specific actions that will be taken to control the respective hazards. These control measures may include work practice controls, engineering controls, and/or use of appropriate personal protective equipment (PPE). Site control with the use of specific work zones (support zone, contamination reduction zone, and exclusion zone) is addressed in Chapter 7.0 of Appendix A of the IT Corporation (IT), February 2002, *Draft Revision 3, Final Installation-Wide Sampling and Analysis Plan, Fort McClellan, Calhoun County, Alabama.*

Range K is a 2-acre former chemical agent training area located at the Western Pelham Range. Reports indicate the area was used as a shell tapping area prior to 1961 and continued through the summer of 1963. During training exercises breaking open one 155-mm distilled mustard, one 105-mm sarin, and one 4.2-inch phosgene mortar rounds were standard practice. Additionally, a 55-gallon steel drum has been identified partially buried at the Range K, Former Chemical Agent Training Area. Due to unknown contents of the drum, access to any intact drum will be performed using a remote operated drum punch from an upwind location. A site specific drum removal and sampling plan has been prepared to guide this activity. Personnel shall establish a support area at an upwind locations to monitor this activity. Contamination reduction zones shall also be positioned upwind of the drum activities. Personal protective equipment for drum punching and sampling shall consist of Level B PPE as described in Chapter 3.0 of this SSHP. All support personnel involved in drum removal, such as equipment operators and field labor, shall wear the same level of PPE as specified in Chapter 3.0.

Following are the types of chemical agents, decontamination solutions and the description of each chemical that was presumably used at Range K, Parcel 203(7) site.

- Distilled mustard (HD)
- Decontamination agent (non-corrosive) (DANC)
- Decontamination Solution Number 2 (DS2)
- Phosgene (CG)
- Sarin (GB).

HD. HD (bis-[2-chloroethyl] sulphide is an oily chemical that has a high boiling point. HD was used extensively in WWI. HD hydrolyzes very slowly at normal temperature. In dilute aqueous solution, it degrades to form thiodiglycol. Two additional decomposition products are 1,4-dithiane (DT) or 1,4-oxathiane (OT). 1,4-DT is a thermal degradation product and 1,4-OT is formed from dechlorination of mustard.

DANC. Prior to WWII, a well known and often used decontaminating agent, DANC may have been used or disposed of at the site in conjunction with other types of decontaminates such as DS2 and/or STB. DANC is a 6.25 percent solution of RH-195 (1,3-dichloro-5, 5-dimethylhydantion) in 1,1,2,2-tetrachloroethane (acetylene tetrachloride) and was disposed as a satisfactory HD decontaminant in small-scale operations. It is an effective decontaminant for arsenals, if sufficient time is allowed for it to react, (U.S. Department of Army and Air Force, 1963).

DS2. DS2 is a clear solution general purpose decontaminant consisting of 70 percent diethylenetriamine, 28 percent solvent (ethylene glycol monomethylether) and 2 percent active agent booster (sodium hydroxide). DS2 decontaminant reacts with GB and HD to effectively reduce their hazard within 5 minutes of application. It is effective for all toxic chemical agents. DS2 was applied manually or by using a portable decontaminating apparatus such as the M11, (U.S. Department of Army and Air Force, 1963).

Phosgene. CG (carbonyl chloride) a gaseous chemical agent used in WWI. CG has a vapor density of 3.4 compared to air and is readily hydrolyzed under usual field conditions, (U.S. Department of the Air Force, 1963).

GB. (Sarin Nerve Agent), A gaseous chemical agent that produced hydrogen fluoride under acidic conditions, isopropyl and alkaline conditions.

Table 2-1 contains the toxicological and physical properties of chemicals anticipated or used at the Range K, Parcel 203(7), Fort McClellan, Alabama. Attachment 2 contains the evaluation of OE/UXO/CWM in support of HTRW activities. The CWM risk assessment reports for Range K are in Attachment 2.

Table 2-1

Toxicological and Physical Properties of Chemicals
Range K, Parcel 203(7)
Fort McClellan, Calhoun County, Alabama

Substance [CAS]	IP[a] (eV)	Odor Threshold (ppm)	Route[b]	Symptoms of Exposure	Treatment	TWA[c]	STEL[d]	Source[e]	IDLH (NIOSH)[f]
Acetone [67-64-1]	9.7	13□100	Inh Ing Con	Irritated eyes, nose, and throat; headache, dizziness; dermatitis, CNS depression	Eye: Irrigate immediately Skin: Soap wash immediately Breath: Respiratory support Swallow: Immediate medical attention	1,000 ppm 500 ppm 250 ppm	750 ppm	PEL TLV REL	2,500 ppm (10% LEL)
Fuel oil (diesel oil, medium)	?	?	Ing Inh Con	Ingestion causes nausea, vomiting, and cramps; depressed central nervous system, headache, coma, death; pulmonary irritation; kidney and liver damage; aspiration causes severe lung irritation, coughing, gagging, dyspnea, substernal stress, pulmonary edema; bronchopneumonia; excited, then depressed, central nervous system.	Eye: Irrigate promptly Skin: Soap wash Breath: Respiratory support Swallow: Immediate medical attention Aspiration: Immediate medical attention			PEL TLV REL	
Gasoline [8006-61-9]	?	0.3	Inh Ing Con	Intoxication, headaches, blurred vision, dizziness, nausea; eye, nose throat irritation; potential kidney and other cancers. Carcinogenic.	Eye: Irrigate immediately (15 min) Skin: Soap wash promptly Breath: Respiratory support Swallow: Immediate medical attention	300 ppm Ca, lowest feasible conc. (LOQ 15 ppm)	500 ppm	PEL TLV REL	Ca [N.D.]

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Substance [CAS]	IP[a] (eV)	Odor Threshold (ppm)	Route[b]	Symptoms of Exposure	Treatment	TWA[c]	STEL[d]	Source[e]	IDLH (NIOSH)[f]
GB (Sarin)	NA	NA	Abs	Anticholinesterase agent producing cholinergic poisoning; tightness in chest, wheezing, increased bronchial secretion, cough, breathing difficulty, pulmonary edema, death; CNS depression, coma, convulsion; sweating; salivation, abdominal cramps, heartburn, belching, diarrhea, involuntary defecation.	Eye: Irrigate immediately. Transfer to medical facility Skin: Remove victim from area immediately. Flush skin and clothes with bleach within 1 minute. Cut and remove contaminated clothing, then wash skin again with bleach and then with soap and water. Transfer to medical facility. Breath: Remove from area immediately. Transfer to medical facility.	None	C0.0001 mg/m^3	AEL	0.2 mg/m^3
n-Hexane [110-54-3]	10.18	65□248	Inh Ing Con	Lightheadedness; nausea, headache; numbness of the extremities, muscular weakness; irritation of the eyes and nose; dermatitis; chemical pneumonia; giddiness.	Eye: Irrigate immediately Skin: Soap wash immediately Breath: Respiratory support Swallow: Immediate medical attention	500 ppm 50 ppm 50 ppm		PEL TLV REL	1,100 ppm (10% LEL)

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Substance [CAS]	IP[a] (eV)	Odor Threshold (ppm)	Route[b]	Symptoms of Exposure	Treatment	TWA[c]	STEL[d]	Source[e]	IDLH (NIOSH)[f]
Isopropyl alcohol (isopropanol) [67-63-0]	10.16	43□200	Inh Ing Con	Mild irritation of the eyes, nose, and throat; drowsiness, dizziness, headache; dry, cracked skin.	Eye: Irrigate immediately Skin: Water flush Breath: Respiratory support Swallow: Immediate medical attention	400 ppm 400 ppm 400 ppm	 500 ppm 500 ppm	PEL TLV REL	2,000 ppm (10% LEL)
Lewisite (Arsenic trichloride)	NA	NA	Inh Con	Blister agent. Geranium-like odor. Systemic poison causing pulmonary edema, diarrhea, restlessness, subnormal temperature, and low blood pressure.	Eye: Irrigate immediately. Transfer to medical facility Skin: Remove victim from area immediately. Flush skin and clothes with bleach within 1 minute. Cut and remove contaminated clothing, then wash skin again with bleach and then with soap and water. Transfer to medical facility. Breath: Remove from area immediately. Transfer to medical facility.	None	C0.003 mg/m^3	AEL	-
Motor Oil [NA]	?	?	Inh Ing	Irritated eyes, skin, respiratory system; usually only a problem if misted or ingested.	Eye: Irrigate immediately (15 min) Skin: Soap wash immediately Swallow: Immediate medical attention			PEL TLV REL	

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Fort McClellan, Calhoun County, Alabama

Substance [CAS]	IP[a] (eV)	Odor Threshold (ppm)	Route[b]	Symptoms of Exposure	Treatment	TWA[c]	STEL[d]	Source[e]	IDLH (NIOSH)[f]
Mustard gas	NA	0.0006 mg/m^3	Abs Inh	Garlic-like odor. Eye and respiratory tract irritation; redness of skin and blisters develop 4 to 24 hours after exposure; hoarseness, sore throat, coughing, pulmonary edema	Treat like a thermal burn. Do not break blisters. Eye: Irrigate immediately. Transfer to medical facility Skin: Remove victim from area immediately. Flush skin and clothes with bleach within 1 minute. Cut and remove contaminated clothing, then wash skin again with bleach and then with soap and water. Transfer to medical facility. Breath: Remove from area immediately. Transfer to medical facility.	-	C0.003 mg/m^3	AEL	Ca
Nitric acid [7697-37-2]	11.95	0.3□1	Inh Ing Con	Irritated eyes, mucous membranes, and skin; delayed pulmonary edema, pneumonitis, bronchitis; dental erosion.	Eye: Irrigate immediately Skin: Water flush promptly Breath: Respiratory support Swallow: Immediate medical attention	2 ppm 2 ppm 2 ppm	4 ppm 4 ppm 4 ppm	PEL TLV REL	25 ppm
Portland cement			Inh	Fine gray powder that can be irritating if inhaled or in eyes.	Eye: Irrigate immediately Skin: Soap wash immediately Breath: Respiratory support Swallow: Immediate medical attention		10 mg/m^3 15 mg/m^3 Total Dust 5 mg/m^3 Respirable Fraction	TLV PEL/REL	5,000 mg/m^3
Sodium hydroxide [1310-73-2]	NA	NA	Inh Ing Con	Irritated nose; pneumonitis; burns eyes, and skin; temporary loss of hair.	Eye: Irrigate immediately Skin: Water flush immediately Breath: Respiratory support Swallow: Immediate medical attention	2 mg/m^3	C 2 mg/m^3 C 2 mg/m^3 C 2 mg/m^3	PEL TLV REL	10 mg/m^3

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Range K, Parcel 203(7)
Fort McClellan, Calhoun County, Alabama

Substance [CAS]	IP[a] (eV)	Odor Threshold (ppm)	Route[b]	Symptoms of Exposure	Treatment	TWA[c]	STEL[d]	Source[e]	IDLH (NIOSH)[f]
Sulfuric acid [7664-93-9]	?	0.15	Inh Ing Con	Irritated eyes, nose, and throat; pulmonary edema, bronchitis; emphysema; conjunctivitis; stomatitis; dental erosion; tracheobronchitis; skin and eye burns; dermatitis.	Eye: Irrigate immediately Skin: Water flush immediately Breath: Respiratory support Swallow: Immediate medical attention	1 mg/m^3 1 mg/m^3 1 mg/m^3	3 mg/m^3	PEL TLV REL	15 mg/m^3

[a]IP = Ionization potential (electron volts).
[b]Route = Inh, Inhalation; Abs, Skin absorption; Ing, Ingestion; Con, Skin and/or eye contact.
[c]TWA = Time-weighted average. The TWA concentration for a normal work day (usually 8 or 10 hours) and a 40-hour work week, to which nearly all workers may be repeatedly exposed, day after day without adverse effect.
[d]STEL = Short-term exposure limit. A 15-minute TWA exposure that should not be exceeded at any time during a workday, even if the TWA is not exceeded.
[e]PEL = Occupational Safety and Health Administration (OSHA) permissible exposure limit (29 CFR 1910.1000, Table Z).
AEL = Airborne Exposure Limit.
TLV = American Conference of Governmental Industrial Hygiene (ACGIH) threshold limit value□TWA.
REL = National Institute for Occupational Safety and Health (NIOSH) recommended exposure limit.
[f]IDLH (NIOSH)□Immediately dangerous to life or health (NIOSH). Represents the maximum concentration from which, in the event of respirator failure, one could escape within 30 minutes without a respirator and without experiencing any escape-impairing or irreversible health effects.
NE = No evidence could be found for the existence of an IDLH (NIOSH Pocket Guide to Chemical Hazards, Pub.1998).
C = Ceiling limit value which should not be exceeded at any time.
Ca = Carcinogen.
NA = Not applicable.
? = Unknown.
LEL = Lower explosive limits.
LC_{50} = Lethal concentration for 50 percent of population tested.
LD_{50} = Lethal dose for 50 percent of population tested.
NIC = Notice of intended change (ACGIH).

Table 2-1

Toxicological and Physical Properties of Chemicals
Range K, Parcel 203(7)
Fort McClellan, Calhoun County, Alabama

References:

American Conference of Governmental Industrial Hygienists Guide to Occupational Exposure Values, 1998, compiled by the American Conference of Governmental Industrial Hygienists.
Amoore, J. E. Hautula, "Odor as an Aid to Chemical Safety," Journal of Applied Toxicology, 1983.
Clayton, George D., Clayton, F. E., Patty's Industrial Hygiene and Toxicology, 3rd ed., John Wiley & Sons, New York.
Documentation of TLVs and BEIs, American Conference of Governmental Industrial Hygienists, 6th ed., 1998.
Fazzuluri, F. A., Compilation of Odor and Taste Threshold Values Data, American Society for Testing and Materials, 1978.
Gemet, L. J. Van, Compilation of Odor Threshold Values in Air and Water, CIVO, Netherlands, 1977.
Gemet, L. J. Van, Compilation of Odor Threshold Values in Air and Water, Supplement IV, CIVO, Netherlands, 1977.
Lewis, Richard J., Sr., 1992, Sax's Dangerous Properties of Industrial Materials, 8th ed., Van Nostrand Reinhold, New York.
Micromedex Tomes Plus (R) System, 1992, Micromedex, Inc.
National Institute for Occupational Safety and Health Pocket Guide to Chemicals, Pub. 1998, National Institute for Occupational Safety and Health.
Odor Threshold for Chemicals with Established Occupational Health Standards, American Industrial Hygiene Association, 1989.
Respirator Selection Guide, 3M Occupational Health and Safety Division, 1993.
Verschuseren, K., Handbook of Environmental Data on Organic Chemicals, Van Nostrand and Reinhold, 1977.
Warning Properties of Industrial Chemicals Occupational Health Resource Center, Oregon Lung Association.
Workplace Environmental Exposure Levels, American Industrial Hygiene Association, 1992.

The presence of unexploded ordnance (UXO) is suspected at the Former Agent Training Area, Range K, Parcel 203(7). Procedures contained in the Site Specific UXO Safety Plan shall be followed for all site activities associated with this investigation.

2.2 General Site Information

Location of Site. Fort McClellan (FTMC) is located in the foothills of the Appalachian Mountains of northeastern Alabama near the cities of Anniston and Weaver in Calhoun County. FTMC is approximately 60 miles northeast of Birmingham, 75 miles northwest of Auburn and 95 miles west of Atlanta, Georgia. FTMC consists of three main areas of government-owned and leased properties: Main Post, Pelham Range and Choccolocco Corridor (lease terminated in May 1998). The Pelham Range consists of approximately 22,245 acres to the west of U.S. Highway 431. Range K is a 2-acre area located at the Western Pelham Range.

Duration of Planned Employee Activity. Employee activity duration is anticipated to be less than one month.

Site Topography and Size. The Range K site is located in a valley flanked by northeast-southwest topographic ridges and thrust faults. Surface topography ranges between 570 and 610 feet above mean sea level in the immediate site area. The Range K is a 2-acre area with surface drainage to the southeast and the shallow groundwater flow direction appears to be southwest.

Pathways for Hazardous Substance Dispersion. Possible pathways for hazardous substances in the area are soils and groundwater.

3.0 Personal Protective Equipment

The work activities will begin in the following levels of protection. Also, a completed description of Level D, Modified Level D, and Level C PPE is provided.

Task	Initial Level of PPE
Initial UXO sweep and equipment staging	Level D
Surveying	Level D
Soil sampling	Modified Level D*
Drum sampling (including drum punching)	Level B**
Equipment operators and field labor	Level B**

*Initial level will be raised to Level C or higher if air monitoring results in the breathing zone (BZ) are greater than action levels.
**Drum sampling, removal, and excavation activities involving UXO personnel, equipment operators, and field labor, shall wear Level B PPE until the contents of the drum(s) and soil contamination have been adequately characterized to warrant a downgrade in PPE. Any downgrade from Level B must be approved by the H&S manager.

Level D. The minimal level of protection that will be required of IT personnel at the site will be Level D. The following equipment will be used for Level D protection:

- Coveralls or work clothing
- Leather work gloves (when necessary)
- Steel-toed safety boots
- Safety glasses
- Hard hat
- Hearing protection (when working near/adjacent to operating equipment).

Modified Level D. The following equipment will be used for Level D-Modified protection:

- Permeable Tyvek, Kleenguard, or its equivalent (Saran-coated tyvek where chemical agents such as mustard (HD) or Sarin (GB) may have been presumably used on Range K)

- Latex boot covers

- Nitrile, heavy work, or latex gloves
- Steel-toed safety boots
- Safety glasses
- Hard hat
- Hearing protection (when working near/adjacent to operating equipment)
- Escape/egress air supply pack (where chemical agents are suspected).

Note: In addition to modifying Level D PPE, the operator of high-pressure water jetting equipment shall wear metatarsal guards for the legs and feet and a face shield.

Level C. Level C protection will not be used unless air-monitoring data indicate the need for upgrade; however, the equipment shall be readily available on site. The following equipment will be used for Level C protection:

- National Institute of Occupational Safety and Health/Mine Safety and Health Administration-approved full-face, air-purifying respirators equipped with organic vapor/acid gas cartridge in combination with high-efficiency particulate air filter
- Hooded, Saran-coated Tyvek, taped at gloves, boots, and respirator
- Nitrile gloves (outer)
- Latex or lightweight nitrile gloves (inner)
- Neoprene steel-toed boots or polyvinyl chloride overbooties/steel-toed safety boots
- Hard hat
- Hearing protection (when working near/adjacent to operating equipment)
- Escape/egress air supply pack (where chemical agents are suspected).

Note: In addition to Level C PPE, the operator of high-pressure water jetting equipment shall wear metatarsal guards for the legs and feet and a face shield.

Level B. Level B protection shall be used for remote drum punching, sampling, removal and excavation activities. The following equipment will be used for Level B protection.

- NIOSH approved positive pressure respirator, air line or SCBA
- Hooded saran-coated Tyvek, taped at gloves, boots and respirator
- Nitrile gloves (outer)
- Latex or lightweight nitrile gloves (inner)
- Neoprene steel-toed boots or polyvinyl chloride overbooties/steel-toed safety boots
- Hard hat
- Hearing protection (when working near/adjacent to operating equipment)

4.0 Site Monitoring

The environmental contaminants of concern resulting from activities at the Range K, Parcel 203(7) include metals, nitroaromatics, semivolatile organic compounds and chemical warfare agents (CWA). Metals including aluminum, arsenic, barium, cadmium, vanadium, iron and manganese have been reported as exceeding background and site specific screening levels in low concentrations. VOC's identified in low concentrations include; cis-1,2-dichloroethene, trans-1,2-dichloroethene, vinyl chloride and 1,1,2,2-tetrachloroethane. Nitroaromatics identified include; 2-nitrotoluene, 4-nitrotoluene and nitrobenzene. Investigations from SAIC in 1995 RI/FS activities included (MINICAMS) analysis at selected Range K investigations. The samples did not detect HD or VX or CWA during the RI, however, provisions shall be implemented to protect the workers during intrusive operations. Table 4-1 contains action levels for site monitoring at the Range K, Parcel 203(7).

Chemical. Air monitoring shall be performed by the site safety and health officer during the performance of ground intrusive operations and drum sampling activities. A calibrated photoionization detector (i.e., HNu DL-101 or equivalent) organic vapor analyzer will be utilized to monitor the sampling locations and BZs to determine if any organic material may be present that would necessitate upgrading of the protection level. A calibrated combustible gas/oxygen indicator will be utilized to monitor the work areas and BZs to determine if any combustible/flammable oxygen levels may be present that would necessitate evacuation of the work area. Table 4-2 contains the air monitoring frequency and location for site monitoring at Range K, Parcel 203(7).

Chemical warfare materiel (CWM) could be encountered during Range K activities. If suspect CWM is encountered at any time, work will cease and the on-site UXO technician will be notified. Evacuation and exclusion zone criteria will be implemented as detailed in Section 2.2 of the site-specific UXO safety plan.

Unexploded Ordnance. UXO support for sampling activities are specified in the site-specific UXO safety plan developed for the drum removal and sampling at Range K, Parcel 203(7). The UXO specialists will perform UXO sweeps prior to moving any equipment onto the site. During this operation, UXO on the surface will be detected and marked for removal during field operations. Additionally, downhole magnetometer surveys will be performed to detect metal objects in the area of excavation.

Table 4-1

Action Levels
Drum Removal and Sampling
Range K, Parcel 203(7)
Fort McClellan, Calhoun County, Alabama

When in Level C PPE

Analyte	Action Level	Required Action[a]
VOCs (volatile organic compound)	≥ 10 ppm above background in breathing zone (BZ)	Stop work, evacuate work area, notify CIH.
Oxygen	≥ 20%, ≤23% < 20%, >23%	Normal operations. Stop work, evacuate work area.
Flammable vapors	≥ 10% LEL < 10% LEL	Stop work, evacuate work area. Continue operations, monitor for VOCs.

When in Level D Modified/D PPE

Analyte	Action Level	Required Action[b]
VOCs	≥ 1 ppm above background in BZ	Stop activities, suspend work activities for 15 to 30 minutes, if readings are sustained then upgrade to Level C PPE.
Oxygen	≥ 20%, ≤23% < 20%, >23%	Normal operations. Stop work, evacuate work area.
Flammable vapors	≥ 10% LEL < 10% LEL	Stop work, evacuate work area. Continue operations, monitor for VOCs.

Table 4-1

Action Levels
Drum Removal and Sampling
Range K, Parcel 203(7)
Fort McClellan, Calhoun County, Alabama

When in Support Zone

Analyte	Action Level	Required Action
VOCs	≥ 1 ppm above background in BZ	Evacuate support zone and re-establish perimeter of exclusion zone.

[a] Four instantaneous peaks in any 15-minute period or a sustained reading for 5 minutes in excess of the action level will trigger a response.

[b] Contact with the H&S manager must be made prior to continuance of work. The H&S manager may then initiate perimeter/integrated air sampling along with additional engineering controls. This may also trigger additional CWA monitoring by the Huntsville division prior to continuation of investigative operations.

No one is permitted to downgrade levels of PPE without authorization from the H&S manager.

Table 4-2

Air Monitoring Frequency and Location
Drum Removal and Sampling at Range K, Parcel 203(7)
Fort McClellan, Calhoun County, Alabama

Work Activity	Instrument	Frequency	Location
Staging equipment	OV Monitor	Initially for area	Breathing zone (BZ) of employees
Soil sampling	OV Monitor	Continuously	BZ of employees
Drum sampling (including drum punching)	OV Monitor LEL/O_2 Monitor	Continuously Continuously	BZ of employees BZ of employees
Equipment operators and field labor during drum removal and soil excavation/removal	OV Monitor LEL/O_2 Monitor	Continuously Continuously	BZ of employees BZ of employees

OV = Organic vapor.
LEL/O_2 = Lower explosive level/oxygen.

If UXO is encountered, personnel will contact the site manager and senior UXO supervisor immediately. UXO personnel will secure the immediate area until the proper authority has removed the hazard. UXO personnel will follow the procedures specified in the site-specific UXO safety plan for construction support contained in this binder. IT will not perform UXO destruction.

5.0 Activity Hazard Analysis

The attached activity hazard analysis (Table 5-1) is provided for the following activities:

- Initial UXO sweep and equipment staging
- Drum sampling
- Soil sampling
- Excavation and drum/soil removal.

All injuries and illnesses must be immediately reported to the site manager or the site safety and health officer, who will then notify off-site personnel and organizations as necessary.

If hospital care must be provided, the victim shall be treated at Northeast Regional Medical Center. Directions to the hospital are provided in Figure 5-1.

Table 5-1

Activity Hazard Analysis
Drum Removal and Sampling at Range K, Parcel 203(7)
Fort McClellan, Calhoun County, Alabama

Activity	Potential Hazards	Recommended Controls
Initial UXO sweep and equipment staging	Slip, trip, and fall hazards	• Determine best access route before transporting equipment. • Practice good housekeeping; keep work area picked up and clean as feasible. • Continually inspect the work area for slip, trip, and fall hazards. • Look before you step; ensure safe and secure footing.
	Heavy lifting	• Use proper lifting techniques. Lifts greater than 60 pounds require assistance or mechanical equipment.
	Falling objects	• Stay alert and clear of materials suspended overhead; wear hard hat and steel-toed boots.
	Flying debris, dirt, dust, etc.	• Wear safety glasses/goggles; ensure that eye wash is in proper working condition.
	Pinch points	• Keep hands, fingers, and feet clear of moving/suspended materials and equipment. • Beware of contact points. • Stay alert at all times!
	Cuts/bruises	• Use cotton or leather work gloves for material handling.
	Bees, spiders, and snakes	• Inspect work area carefully and avoid placing hands and feet into concealed areas.
	Ticks	• Wear light colored clothing (can see ticks better). • Mow vegetated and small brush areas. • Wear insect repellant. • Wear long sleeves and long pants. • Visually check oneself promptly and frequently after exiting the work area.
	Fire	• Fire extinguishers shall be suitably placed, distinctly marked, readily accessible, and maintained in a fully charged and operable condition.
	Hazard communication	• Label all containers as to contents and dispose of properly. • Ensure Material Safety Data Sheets (MSDS) are available for hazardous chemicals used on site.

Table 5-1

Activity Hazard Analysis
Drum Removal and Sampling at Range K, Parcel 203(7)
Fort McClellan, Calhoun County, Alabama

Activity	Potential Hazards	Recommended Controls
Initial UXO sweep and equipment staging (continued)	UXO	• UXO safety support and UXO construction support will be conducted by an on-site UXO team during all activities on Range K. • IF UXO is encountered, cease all activities, mark the location, and notify the site manager and the site UXO technician. • If CWM is encountered (containers, ordnance, etc.) all operations will cease and the personnel will withdraw from the area and follow the procedures in Section 2.0 of the UXO safety plan.
	Noise	• Sound levels above 85 decibels (dBA) mandates hearing protection.
	Lighting	• Adequate lighting will be provided to ensure a safe working environment.
	Cold stress	• Workers should wear insulated clothing when temperatures drop below 40 degrees Fahrenheit (°F). • Drink warm beverages on breaks. Refrain from drinking caffeinated beverages. • Remove wet clothing promptly. • Take breaks in warm areas. • Reduce work periods as necessary. • Layer work clothing.
	Poison ivy/oak/sumac	• Avoid plant areas if possible. • Wear long sleeves and long pants. • Promptly wash clothing that has contacted poisonous plants. • Wash affected areas immediately with soap and water.
	Heat rash	• Keep the skin clean and dry. • Change perspiration-soaked clothing, as necessary. • Bathe at end of work shift or day. • Apply powder to affected area.
	Heat cramps	• Drink plenty of cool fluids even when not thirsty. • Provide cool fluid for work crews. • Move victim to shaded, cool area.
	Heat exhaustion	• Conduct physiological worker monitoring as needed (i.e., heart rate, oral temperature). • Set up work/rest periods. • Use the "buddy system." • Allow workers time to acclimate. • Have ice packs available for use. • Take frequent breaks.

Table 5-1

Activity Hazard Analysis
Drum Removal and Sampling at Range K, Parcel 203(7)
Fort McClellan, Calhoun County, Alabama

Activity	Potential Hazards	Recommended Controls
Initial UXO sweep and equipment staging (continued)	Heat stroke	• Evaluate possibility of night work. • Perform physiological monitoring on workers during breaks. • Wear body cooling devices.
	Contact with moving equipment/vehicles	• Work area will be barricaded/demarcated. • Equipment will be laid out in an area free of traffic flow. • Barricades shall be used on or around work areas when it is necessary to prevent the inadvertent intrusion of pedestrian traffic. • Barriers shall be used to protect workers from vehicular traffic. • Barriers shall be used to guard excavations adjacent to streets or roadways. • Flagging shall be used for the short term (less than 24 hours) to identify hazards until proper barricades or barriers are provided. • Heavy equipment shall have backup alarms.
	Forklift operations	• Use qualified and trained forklift operators. • The operator shall not exceed the load capacity rating for the forklift. • The load capacity shall be clearly visible on the forklift. • Forklift operators shall inform their supervisor of any prescribed medication that they are taking that would impair their judgement.
	Portable electric tools	• Portable electric tools that are unsafe due to faulty plugs, damaged cords, or other reasons, shall be tagged (do not use) and removed from service. • Portable electric tools and all cord and plug connected equipment shall be protected by a ground-fault circuit interrupter (GFCI) device. • Electrical tools shall be inspected daily prior to use.
	Extension cords	• Extension cords that have faulty plugs, damaged insulation, or are unsafe in any way shall be removed from service. • Cords shall be protected from damage from sharp edges, projections, pinch points (doorways), and vehicular traffic. • Cords shall be suspended with a nonconductive support (rope, plastic ties, etc,). • Cords shall be designed for hard duty. • Cords shall be inspected daily.

Table 5-1

Activity Hazard Analysis
Drum Removal and Sampling at Range K, Parcel 203(7)
Fort McClellan, Calhoun County, Alabama

Activity	Potential Hazards	Recommended Controls
Initial UXO sweep and equipment staging (continued)	Lightning strikes	• Whenever possible, halt activities and take cover. • If outdoors, stay low to the ground. • Limit the body surface area that is in contact with the ground (i.e., kneeling on one knee is better than laying on the ground). • Seek shelter in a building if possible. • Stay away from windows. • If available, crouch under a group of trees instead of one. • Remain 6 feet away from tree trunk if seeking shelter beneath tree(s). • If in a group, keep 6 feet of distance between people.
	Thunderstorms, tornados	• Listen to radio or TV announcements for pending weather information. • Cease field activities during thunderstorm or tornado warnings. • Seek shelter. Do not try to outrun a tornado.
Surveying	Slip, trip, and fall hazards	• Site workers will be required to wear hard hat, safety glasses with side shields, work gloves, and steel-toe boots when working in the field. • Provide adequate lighting in all work areas. • Whenever possible, avoid routing cords and hoses across walking pathways. • Flag or cover inconspicuous holes to protect against falls. • Work areas will be kept clean and orderly. • Garbage and trash will be disposed of daily in approved refuse containers. • Tools and accessories will be properly maintained and stored. • Work areas and floors will be kept free of dirt, grease, and slippery materials.

Table 5-1

Activity Hazard Analysis
Drum Removal and Sampling at Range K, Parcel 203(7)
Fort McClellan, Calhoun County, Alabama

Activity	Potential Hazards	Recommended Controls
Surveying (continued)	Traffic accidents	• Place physical barrier (i.e., barricades, fencing) around work areas regularly occupied by pedestrians. • If working adjacent to roadways, have workers wear fluorescent orange vests. • Use warning signs or lights to alert oncoming traffic. • Assign flag person(s) if necessary to direct local traffic. • Set up temporary parking locations outside the immediate work area. • Motor vehicle operators shall obey all posted traffic signs, signals, and speed limits. • Pedestrians have the right-of-way. • Wear seat belts when vehicles are in motion.
	Wildlife hazards	• Workers should be cautious when driving through the site in order to avoid encounters with passing animals.
	Biological hazards	• Walking through overgrown grass areas, watch for snakes (rattlesnakes, moccasins, copperheads).
	Ticks	• Wear light colored clothing (can see ticks better). • Mow vegetated and small brush areas. • Wear insect repellant. • Wear long sleeves and long pants. • Visually check oneself promptly and frequently after exiting the work area.
	Poison ivy/oak/sumac	• Avoid plant areas if possible. • Wear long sleeves and long pants. • Promptly wash clothing that has contacted poisonous plants. • Wash affected areas immediately with soap and water.
	UXO	• UXO safety support and UXO construction support will be provided by a UXO team during all site activities. • If UXO is encountered, cease all activities, mark the location, and notify the site manager and site UXO technician.
Soil Sampling	Cross-contamination and contact with potentially contaminated materials	• Stop immediately at any sign of obstruction. • Sampling technicians will wear proper protective clothing and equipment to safeguard against potential contamination. • Only essential personnel will be in the work area. • Real-time air monitoring will take place before and during sampling activities. • All personnel will follow good hygiene practices. • Proper decontamination procedures will be followed. • All liquids and materials used for decontamination will be contained and disposed of in accordance with federal, state, and local regulations.
	Cut hazards	• Use care when handling glassware. • Wear adequate hand protection.

Table 5-1

Activity Hazard Analysis
Drum Removal and Sampling at Range K, Parcel 203(7)
Fort McClellan, Calhoun County, Alabama

Activity	Potential Hazards	Recommended Controls
Soil Sampling (continued)	Slip, trip, and fall hazards	• Site workers will be required to wear hard hat, safety glasses with side shields, work gloves, and steel-toe/shank boots when working in the field. • Whenever possible, avoid routing cords and hoses across walking pathways. • Flag or cover inconspicuous holes to protect against falls.
	Bees, spiders, and snakes	• Workers shall inspect the work area carefully and avoid placing hands and feet into concealed areas. • Evaluate need for sensitive workers to have prescribed antibiotic or medicine to combat onset of symptoms.
	Poison ivy/oak/sumac	• Avoid plant areas if possible. • Wear long sleeves and long pants. • Promptly wash clothing that has contacted poisonous plants. • Wash affected areas immediately with soap and water.
	Cold stress	• Workers should wear insulated clothing when temperatures drop below 40°F. • Drink warm beverages on breaks. Refrain from drinking caffeinated beverages. • Remove wet clothing promptly. • Take breaks in warm areas. • Reduce work periods as necessary. • Layer work clothing.
	Access/egress hazards	• Use qualified and trained bushhog operator. • Keep employees out of the bushhog work area. • Utilize good housekeeping practices. • Keep aisleways, pathways, and work areas free of obstruction. • Clean ice or snow off of walkways or work stations. • Use appropriate footwear for the task assigned.
	Heat rash	• Keep the skin clean and dry. • Change perspiration-soaked clothing, as necessary. • Bathe at end of work shift or day. • Apply powder to affected area.
	Heat cramps	• Drink plenty of cool fluids even when not thirsty. • Provide cool fluid for work crews. • Move victim to shaded, cool area.

Table 5-1

Activity Hazard Analysis
Drum Removal and Sampling at Range K, Parcel 203(7)
Fort McClellan, Calhoun County, Alabama

Activity	Potential Hazards	Recommended Controls
Soil Sampling (continued)	Heat exhaustion	• Conduct physiological worker monitoring as needed (i.e., heart rate, oral temperature). • Set up work/rest periods. • Use the buddy system. • Allow workers time to acclimate. • Have ice packs available for use. • Take frequent breaks.
	Heat stroke	• Evaluate possibility of night work. • Perform physiological monitoring on workers during breaks. • Wear body cooling devices.
	Lightning strikes	• Whenever possible, halt activities and take cover. • If outdoors, stay low to the ground. • Limit the body surface area that is in contact with the ground (i.e., kneeling on one knee is better than laying on the ground). • Seek shelter in a building if possible. • Stay away from windows. • If available, crouch under a group of trees instead of one single tree. • Keep all body parts in contact with the ground as close as possible. • If in a group, keep 6 feet of distance between people.
	UXO	• UXO safety support and UXO construction support will be provided by a UXO team during all site activities. • If UXO is encountered, cease all activities, mark the location, and notify the site manager and UXO technician.
	Accidental exposure to chemical agents	• Modified Level D personal protective equipment (PPE) will be required. During the first 15 feet depth of each monitoring well installation activity, downhole geophysics will be performed. • Engineering controls will be used as appropriate. • Personnel will be equipped with an emergency egress air supply pack.
Moving and Shipping Collected Samples	Heavy lifting	• Use proper lifting techniques. Lifts greater than 60 pounds require assistance or mechanical equipment; size up the lift.
	Pinch points	• Keep hands, fingers, and feet clear of moving/suspended materials and equipment. • Beware of contact points. • Stay alert at all times!
	Cut hazards	• Wear adequate hand protection. Use care when handling glassware.

Table 5-1

Activity Hazard Analysis
Drum Removal and Sampling at Range K, Parcel 203(7)
Fort McClellan, Calhoun County, Alabama

Activity	Potential Hazards	Recommended Controls
Moving and Shipping Collected Samples (continued)	Hazard communication	• Label all containers as to contents and associated hazards.
	Heavy lifting	• Use proper lifting techniques. Lifts greater than 60 pounds require assistance or mechanical equipment; size up the lift.
Material Storage	Flammable and combustible liquids	• Store in NO SMOKING AREA. • Fire extinguisher readily available. • Transfer only when properly grounded and bonded.
Disposal of Investigation-Derived Waste (IDW) (Forklift Operation)	Personnel injury, property damage, and/or equipment damage	• Use qualified and trained forklift operators. • The operator shall not exceed the load capacity rating for the forklift. • The load capacity shall be clearly visible on the forklift. • Forklift operators shall inform their supervisor of any prescribed medication that they are taking that would impair their judgement.
	Cross-contamination and contact with potentially contaminated materials	• Stop immediately at any sign of obstruction. • Sampling technicians will wear proper protective clothing and equipment to safeguard against potential contamination. • Only essential personnel will be in the work area. • Real-time air monitoring will take place before and during sampling activities. • All personnel will follow good hygiene practices. • Proper decontamination procedures will be followed. • All liquids and materials used for decontamination will be contained and disposed of in accordance with federal, state, and local regulations.
	Cut hazards	• Use care when handling glassware. • Wear adequate hand protection.
High-Pressure Water Jetting Operations	Heavy lifting	• Use proper lifting techniques. • Lifts greater than 60 pounds require assistance or mechanical equipment; size up the lift.
	Slip, trip, and fall hazards	• Good housekeeping shall be implemented. • The work area shall be kept clean as feasible. • Inspect the work area for slip, trip, and fall hazards.

Table 5-1

Activity Hazard Analysis
Drum Removal and Sampling at Range K, Parcel 203(7)
Fort McClellan, Calhoun County, Alabama

Activity	Potential Hazards	Recommended Controls
High-Pressure Water Jetting Operations (continued)	Fueling	• Only approved safety cans shall be used to store fuel. • Do not refuel equipment while it is operating. • Fire extinguishers shall be suitably placed, distinctly marked, readily accessible, and maintained in a fully charged and operable condition.
	Faulty or damaged equipment	• Equipment shall be inspected before being placed into service and at the beginning of each shift. • Preventive maintenance procedures recommended by the manufacturer shall be followed. • A lockout/tagout procedure shall be used for equipment found to be faulty or undergoing maintenance.
	High-pressure water	• Jetting gun operator must wear appropriate PPE including hard hat, impact-resistant safety glasses with side shields, water-resistant clothing, metatarsal guards for feet and legs, and hearing protection (if appropriate). • One standby person shall be available within the vicinity of the pump during jetting operation. • The work area shall be isolated and adequate barriers will be used to warn other site personnel.
	Unqualified operators	• Only qualified and trained personnel are permitted to operate machinery and mechanized equipment associated with water jet cutting and cleaning.
	Out of control equipment	• No machinery or equipment is permitted to run unattended. • Machinery or equipment will not be operated in a manner that will endanger persons or property nor will the safe operating speeds or loads be exceeded.
	Noise	• Sound levels above 85 dBA mandates hearing protection by nearby site personnel.
	Activation during repairs	• All machinery or equipment will be shut down and positive means taken to prevent its operation while repairs or manual lubrications are being done.
	Pinch points	• Keep feet and hands clear of moving/suspended materials and equipment. • Stay alert and clear of materials suspended .
	Falling objects	• Hard hats are required by site personnel. • Stay alert and clear of material suspended overhead.
	Flying debris	• Impact-resistant safety glasses with side shields are required.
	Contact with potentially contaminated materials	• All site personnel will wear the appropriate PPE.

Table 5-1

Activity Hazard Analysis
Drum Removal and Sampling at Range K, Parcel 203(7)
Fort McClellan, Calhoun County, Alabama

Activity	Potential Hazards	Recommended Controls
Drum Sampling	UXO	• UXO safety support and UXO construction support will be provided by a UXO team during all site activities. • If UXO is encountered, cease all activities, mark the location, and notify the site manager and UXO technician immediately.
	Cross contamination and contact with potentially contaminated materials.	• Sampling technicians will wear proper protective clothing and equipment to safeguard against potential contamination (Level B PPE). • Avoid skin contact with water. • Handle samples with care. • Only essential personnel will be in the work area. • Real-time air monitoring will take place before and during sampling activities. • All personnel will follow good hygiene practices. • Proper decontamination procedures will be followed. • All liquids and materials used for decontamination will be contained and disposed of in accordance with federal, state, and local regulations.
	Cut hazards	• Use care when handling glassware. • Wear adequate hand protection.
	Strains/Sprains	• Use the proper tool for the job being performed. • Get assistance if needed. • Avoid twisting/turning while pulling on tools, moving equipment, etc.
	Spills/residual materials	• Absorbent material and containers will be kept available where leaks or spills may occur. • Puncture drum at highest point to minimize potential liquid spill.
	Unattended worker	• Use "buddy system" – visual contact will be maintained with the sampling technician during sampling activities.
	Flammable vapors	• Use nonsparking tools to pierce drum remotely. • Perform VOC/O_2/LEL air monitoring inside drum.
Excavation and Drum/Soil Removal	Traffic accidents/vehicle control	• UXO and site safety personnel will delineate size of the excavation zone and place physical barriers (i.e., barricades, fencing) around work areas. • If working adjacent to roadways, have workers wear fluorescent orange vests. • Use warning signs or lights to alert oncoming traffic. • Assign flag persons(s) if necessary to direct local traffic. • Set up temporary parking locations outside the immediate work area. • Motor vehicle operators shall obey all posted traffic signs, signals, and speed limits. • Pedestrians have the right-of-way. • Wear seat belts when vehicles are in motion.
	Wildlife hazards	• Workers should be cautious when driving through the site in order to avoid encounters with passing animals.
	Biological hazards	• Walking through overgrown grass areas, watch for snakes (rattlesnakes, moccasins, copperheads).

Table 5-1

Activity Hazard Analysis
Drum Removal and Sampling at Range K, Parcel 203(7)
Fort McClellan, Calhoun County, Alabama

Activity	Potential Hazards	Recommended Controls
Excavation and Drum/Soil Removal (continued)	Ticks	• Wear light-colored clothing (can see ticks better). • Mow vegetated and small brush areas. • Wear insect repellant. • Wear long sleeves and long pants. • Visually check oneself promptly and frequently after exiting the work area.
	Poison ivy/oak/sumac	• Avoid plant areas if possible • Wear long sleeves and long pants. • Promptly wash clothing that has contacted poisonous plants. • Wash affected areas immediately with soap and water.
	Heavy equipment operations	• Only qualified, trained, and authorized personnel will operate heavy equipment. • Before any machinery or mechanized equipment is placed into service, it shall be inspected and tested by a competent mechanic and certified to be in safe operating condition. • Equipment shall be inspected before being placed into service and at the beginning of each shift. • Preventive maintenance procedures recommended by the manufacturer shall be followed. • All lockout/tagout procedures shall be used for equipment found to be faulty or undergoing maintenance. • Machinery and mechanized equipment shall be operated only be designated personnel • Getting off or on any equipment when it is in motion is prohibited. • Machinery or equipment requiring an operator shall not be permitted to run unattended. • Machinery or equipment will not be operated in a manner that will endanger persons or property nor will the safe operating speeds or loads be exceeded. • All machinery or equipment will be shut down and positive means taken to prevent its operation while repairs or manual lubrications are being done. • All repairs on machinery or equipment will be made at a location that provides protection from traffic for repair persons. • Bulldozer and scraper blades, end-loader buckets, and similar equipment will be either fully lowered or blocked when being repaired or when not in use. • All self-propelled construction equipment shall be equipped with a back-up alarm.
	Cross-contamination and contact with potentially contaminated materials	• Personnel involved with drum and soil sampling excavation and removal will wear protective protective clothing and equipment to safeguard against potential contamination. • Avoid skin contact with soils and water. • Handle samples with care. • Only essential personnel will be in the work area. • Real-time air monitoring will take place before and during excavation activities. • All personnel will follow god hygiene practices. • Proper decontamination procedures will be followed. • All liquids and materials used for decontamination will be contained and disposed of in accordance with federal, state, and local regulations.

Table 5-1

Activity Hazard Analysis
Drum Removal and Sampling at Range K, Parcel 203(7)
Fort McClellan, Calhoun County, Alabama

Activity	Potential Hazards	Recommended Controls
Excavation and Drum/Soil Removal (continued)	Contact with underground utilities	• All underground utilities shall be located and marked prior to excavation operations.
	Cut hazards	• Use care when handling glassware. • Wear adequate hand protection.
	Hazard communication	• MSDSs shall be obtained for chemicals brought on site. • Label all containers as to contents.
	Strains/sprains	• Personnel required to perform shoveling should check tool integrity before use. • Use the proper tool for the job being performed. • Get assistance if needed. • Avoid twisting/turning while pulling on tools, moving equipment, etc.
	Spills/residual materials	• Refer to drum sampling and removal plan for detailed spill control. • Absorbent material and containers will be kept available where leaks or spills may occur.
	Lighting	• Adequate lighting will be provided to ensure a safe working environment.

ATTACHMENT 1

PELHAM RANGE EMERGENCY ROUTE AND RANGE CONTROL CONTACT

Pelham Range Emergency Routes

- Range Control will determine depending on the wind direction the best egress route.
- Range Control will advise over the radio which route to take.
- 4 routes have been indicated on the enclosed map.

Medical Emergency

- Exit gate Number 3 at Pelham Range,
- Turn right onto Route 431,
- Turn right onto Highway 21 (Quintard),
- Turn left onto 10th Street,
- Hospital is 1-1/2 blocks ahead,
  - Northeast Alabama Regional Medical Center
  - 400 East 10th Street
  - Anniston, Alabama

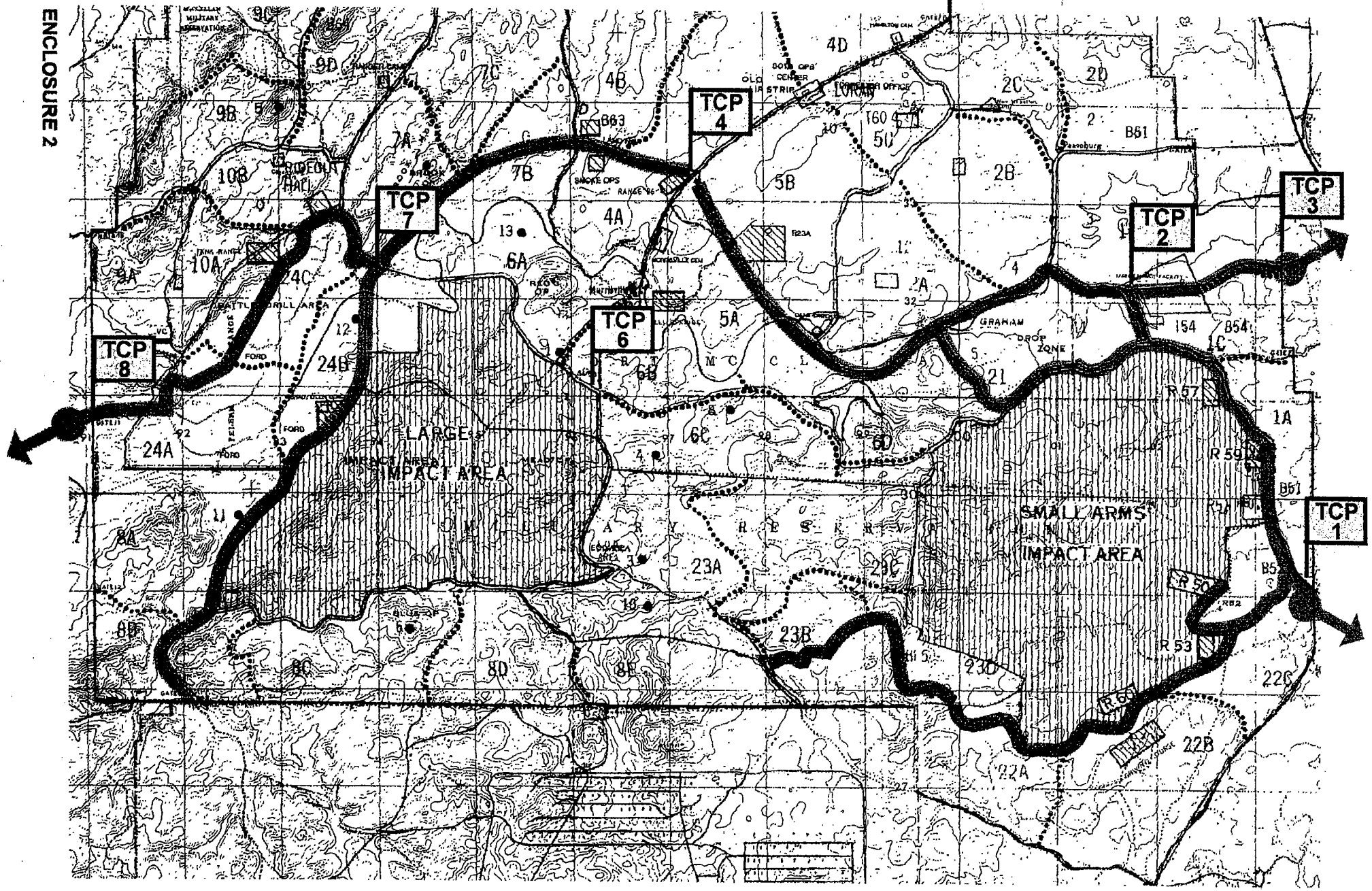
Range Control- Pelham Range

- Building 1120, Ft McClellan
  Phone No. 848-6772
  Fax No. 848-4412

All access permits are issued by range control, daily.

PELHAM RANGE EVACUATION ROUTES

ENCLOSURE 2



FORT MCCLELLAN ALERT AND NOTIFICATION SYSTEM

An outdoor electronic alert and notification system is operational on Fort McClellan and Pelham Range. The purpose of this system is to provide warning(s) of an emergency situation that poses a threat to the safety and health of personnel on Fort McClellan and Pelham Range. The system has the capability of providing digital voice, electronic tone alerts and live voice loudspeaker warnings of emergency situations. The following is a list of the digital voice and associate tone alerts for the various hazards that could threaten personnel on both portions of the installation:

1. **THIS IS A TEST!** This is a test of the Fort McClellan emergency warning system. **THIS IS A TEST AND ONLY A TEST!** **WAIL TONE**

This message is used for the monthly test on the first Tuesday at 1600 hrs.

2. **WARNING! TORNADO WARNING!** A tornado warning has been issued for this area. Seek shelter immediately. Tune to a local radio station. Seek shelter immediately. **TORNADO WARNING!** **SOLID TONE**

3. **WARNING! SEVERE WEATHER WARNING!** A severe weather warning has been issued for this area. Standby for further instructions. Tune to a local radio station. **SEVERE WEATHER WARNING!** **SOLID TONE**

4. **WARNING! THUNDERSTORM WARNING!** A thunderstorm warning has been issued for this area. Standby for further instructions. Tune to a local radio station. **THUNDERSTORM WARNING!** **SOLID TONE**

5. **WARNING! HAZARDOUS MATERIALS ACCIDENT!** There has been a hazardous materials accident. Standby for further instructions. Tune to a local radio station. **HAZARDOUS MATERIALS ACCIDENT!** **HI-LO TONE**

6. **WARNING!** Anniston Army Depot has announced a chemical agent release. Standby for further instructions. Tune to FM 100 radio station. **CHEMICAL AGENT RELEASE!** **WHOOP TONE**

7. **ALL CLEAR!** The emergency situation is over. **ALL CLEAR!** The emergency situation is over. **ALL CLEAR!** **NO TONE**

8. **CHEMICAL ALERT!** Initiate evacuation procedures immediately. A chemical agent release has occurred at Anniston Army Depot. **EVACUATE IMMEDIATELY! CHEMICAL ALERT!** **WHOOP TONE**

This voice message was specifically designed for Pelham Range.

Sequence of initial alert and notification is:

VOICE MESSAGE–TONE–VOICE MESSAGE–TONE

repeated twice, again as the situation warrants.

Enclosure One

ATTACHMENT 2

EVALUATION OF OE/UXO/CWM IN SUPPORT OF HTRW ACTIVITIES

Evaluating OE/UXO/CWM Hazards in Support of HTRW Activities

Site Name: Range K, Former Agent Training Area, Parcel 203(7) - Pelham Range

Job Number: 774645 **Date: 12/5/01**

Name of person completing form: John Ragsdale **Title: Plan Writer**

Signature: John Ragsdale

	Yes	No
1a. Have the historical records available for this HTRW site been reviewed?	☒	☐

If the answer to **1a.** is yes, proceed to **1b.**
If the answer to **1a.** is no, review site information prior to completing this form.

	Yes	No
1b. Is there recent information (site walk, worker interviews, etc.) that indicates a potential OE/CWM hazard at this site?	☒	☐

Proceed to **2.**

2. According to the records review, is this site known or suspected to have been used for:

	Yes	No
2a. Manufacturing, production, or shipping of conventional or chemical warfare materiel (CWM) OE:	☐	☒
Live fire testing of any ordnance:	☐	☒
Conventional or CWM OE training:	☒	☐
Storage of conventional or CWM OE:	☐	☒
Disposal or demilitarization of conventional or CWM OE:	☒	☐
Other (specify):		

	Yes	No
2b. Manufacturing, production, or shipping of chemical agent:	☐	☒
Research or testing of chemical agent:	☐	☒
Chemical agent related training:	☒	☐
Storage of chemical agent:	☐	☒
Disposal or demilitarization of chemical agent:	☒	☐
Other (specify):		

Any **2a** question answered "YES" indicates UXO support is required for all site activities. If all **2a** questions are answered "NO", UXO support may not be required. Refer to Installation-Wide Safety and Health Plan (SHP) for additional information concerning UXO support. Proceed to question **2b**.

Any **2b** question answered "YES" requires the remainder of this form to be completed. If all **2b** questions are answered "NO", real-time monitoring for chemical agent will not be required and completing the remainder of this form is not required. Refer to SHP for additional information concerning agent monitoring.

Additional space for notes and explanations on page 4.

Continue to page 2 of 4 –

Evaluating OE/UXO/CWM Hazards in Support of HTRW Activities
Site Name: Range K, Former Agent Training Area, Parcel 203(7) - Pelham Range
Job Number: 774645 **Date: 12/5/01**

3. For sites where the manufacturing, testing, storage, or disposal of CWM is suspected:	**Yes**	**No**
Is there evidence that the CWM is/was containerized in potentially unexploded ordnance:	☐	☒
Is there evidence that the CWM is/was containerized in nonexplosive containers:	☒	☐
Is there evidence that the CWM is open to the environment (i.e., in an open container or free liquid/solid in the soil/water):	☒	☐
Is there evidence that the CWM hazard has been removed from the site or that the site has been decontaminated:	☒	☐
Has the site been previously monitored or sampled for chemical agent or agent breakdown products:	☒	☐
For any "YES" above, was the agent or breakdown product identified?	☒	☐

For any "Yes", list types of agent (mustard, lewisite, etc.) and the form (in ordnance, in drum, etc.) the CWM is expected to be found (or state "unknown"):

Training exercises consisted of breaking open one 155-millimeter distilled mustard (HD), one 105-millimeter sarin (GB), and one 4.2-inch phosgene (CG) mortar round as standard practice. Decontamination agent-noncorrosive (DANC) cans, and diethylenetriamine, sodium hydroxide, ethylene glycol monomethyl ether (DS2) cans were observed on site.

List agent breakdown products identified:
None were detected in soil samples. However, low levels of 1,4-Dithiane and 1,4-Oxathiane were detected in groundwater in two monitoring wells.

4. Defining the Potential for the Presence of CWM:	**Agent Monitoring Requirements for Site Activities:**
4a. High Presence Potential – Definition: CWM is known or highly suspected to be present at the site in a condition (within ordnance and/or nonexplosive container, or in an uncontainerized form in sufficient volume that weathering of the product has not rendered it harmless) that will cause potential harm to personnel if it is encountered.	Mandatory personal and perimeter air monitoring using the DAAMS, MINICAMS, and RTAP collection/analysis methods with off-site surety laboratory confirmation of all environmental samples. Specific monitoring criteria (equipment types and sampling station placement, percentage of personnel monitored, etc.) to be established in the Site Specific Safety and Health Plan (SSHP).
4b. Moderate Presence Potential - Definition: CWM is suspected to have been present at the site, but has been previously removed and/or decontaminated, or has been open to the environment such that it is expected to have degraded and been rendered harmless.	The need for personal and perimeter air monitoring using the DAAMS, MINICAMS, and RTAP collection/analysis methods with off-site surety laboratory confirmation of all environmental samples will be reviewed on a site-by-site basis. Specific monitoring criteria (equipment types and sampling station placement, percentage of personnel monitored, etc.) to be established in the Site Specific Safety and Health Plan (SSHP).
4c. Low Presence Potential – Definition: No indications that CWM will be present in quantity or reactivity (in munitions, projectiles, drums, etc.).	No specific personal or area monitoring for chemical agents required beyond what is specified in the SHP.

Continue to page 3 of 4 -

Evaluating OE/UXO/CWM Hazards in Support of HTRW Activities

Site Name: Range K, Former Agent Training Area, Parcel 203(7) - Pelham Range

Job Number: 774645 **Date: 12/5/01**

Based on the information available for this site, including information gathered during completion of this form, the potential for CWM to be present at this site, as defined above, is expected to be: ***LOW***

Exceptions/Explanations: See attached letter from the Department of the Army (additional space for notes and explanations on page 4)

5. Based on the information provided in questions 1 through 5, above, the following guidelines will be used for establishing PPE requirements for activities to be performed at this site; Specific details are provided in the SSHP:	
5a. High Exposure Potential - High exposure potential is determined by evaluating the potential presence of CWM in conjunction with the task(s) to be performed, as well as the specific location and duration of the task(s).	Subject to review by the IT CIH, PPE for all personnel in the exclusion zone at a site identified as having a "High Exposure Potential" will be Level B (supplied air) or Level C (full-face respirator with HEPA/Acid Gas/OV cartridges w/ emergency egress hood) and chemically resistant coveralls. Specific PPE requirements are in the SSHP for this site.
5b. Moderate Exposure Potential - Moderate exposure potential is determined by evaluating the potential presence of CWM in conjunction with the task(s) to be performed, as well as the specific location and duration of the task(s).	Subject to review by the IT CIH, PPE for all personnel in the exclusion zone at a site identified as having a "Moderate Exposure Potential" will be Modified Level D (disposable coveralls and emergency egress hood) carried by all personnel. Specific PPE requirements are in the SSHP for this site.
5c. Low Exposure Potential - Low exposure potential is determined by evaluating the potential presence of CWM in conjunction with the task(s) to be performed, as well as the specific location and duration of the task(s).	Subject to review by the IT CIH, no additional PPE requirements above those stated in the SSHP are needed for sites identified as having "Low Exposure Potential." Specific PPE requirements are in the SSHP for this site.

Based on all available information, the exposure potential at this site is considered to be: ***LOW***

Exceptions/Explanations: **See attached letter from the Department of the Army**

Review Signatures:

IT UXO Technical Manager _____ Date: 24 May 02 IT H&S Specialist _____ Date: 5/23/02

Evaluating OE/UXO/CWM Hazards in Support of HTRW Activities

Site Name: Range K, Former Agent Training Area, Parcel 203(7) - Pelham Range

Job Number: 774645 **Date: 12/05/01**

Additional Notes and Explanations:

See attached memorandum from Ronald Levy, BRAC Environmental Coordinator, Department of the Army, to Ellis Pope, USACE, Mobile, Alabama

DEPARTMENT OF THE ARMY
U.S. ARMY GARRISON
FORT McCLELLAN, ALABAMA 36205-5000

A3-0032

774645(0575)

REPLY TO
ATTENTION OF

ATZN-ENV

23 July 2001

MEMORANDUM FOR U.S. Army Corps of Engineers, Mobile District, 109 St. Joseph St., ATTN: CESAM-EN-GE (Mr. Ellis Pope), Mobile, Alabama 36602

SUBJECT: Risk Assessment Report, Range I, Parcel 201(7)
Risk Assessment Report, Former Agent Training Area, Range K, Parcel 203(7)

1. Subject documents (Attachments A and B) are signed and forwarded for your use. IT Corporation prepared these reports per AR 385-10 to determine the probability of encountering chemical warfare material (CWM) during proposed field activities at Range I and Range K. This office concurs with the subject risk assessments. The report format follows the format of CWM risk assessments previously submitted to and approved by Fort McClellan (Attachment C).

2. POC for this action is the undersigned at (256) 848-3539/6853.

Ronald M. Levy

RONALD M. LEVY
BRAC Environmental Coordinator

Atch
as

ATTACHMENT A

RISK ASSESSMENT REPORT
RANGE I, PARCEL 201(7)

Risk Assessment Report
Range I, Parcel 201(7)
Fort McClellan, Calhoun County, Alabama

1.0 INTRODUCTION

The U.S. Army is conducting environmental studies of the impact of suspected contaminants at Fort McClellan (FTMC) in Calhoun County, Alabama, under the management of the U.S. Army Corps of Engineers (USACE)-Mobile District. The USACE contracted with IT Corporation (IT) to perform a site investigation (SI) at Range I, Parcel 201(7). In accordance with Army Regulation (AR) 385-10, *Applicability of Biological Warfare Materiel and Non-Stockpile Chemical Warfare Materiel Response Activity Interim Guidance*, this risk assessment report is provided to determine the probability of encountering chemical warfare material (CWM) during SI field activities at Range I, Parcel 201(7).

2.0 SITE BACKGROUND

Range I, Parcel 201(7), is located within Training Area 10A in the western region of Pelham Range. Range I was reportedly used for both agent shell tapping and area-denial/decontamination exercises from 1963 to 1964. However, there have been accounts that there are two Range I's and the reported agent shell tapping activities likely occurred at the AAD Shell Tapping Area (U.S. Army Center for Health Promotion and Preventive Medicine [CHPPM], 1999).

Retired personnel report conducting area-denial/decontamination exercises at this general location. Forty 1-gallon chemical land mines, consisting of lewisite-filled 1-gallon metal cans, were detonated during one exercise. The area was decontaminated using M3A2 truck-mounted decontamination equipment to dispense lime slurry. A chain-link fence was erected around the area after decontamination training was completed. However, area decontamination exercises were reportedly performed over a larger area than that within the existing fenced area (ESE, 1998).

3.0 PREVIOUS INVESTIGATIONS

Previous investigations have been conducted at Range I, as discussed in the following paragraphs.

A previous investigation by Roy F. Weston, Inc. (1990) reports that the top 2 feet of soil had been removed to an unknown location. There is not any available date of excavation, volume of soil removed, or reference provided in the report. However, a draft report by the CHPPM states that there was visual evidence of earthwork in a 1977 photograph of Range I (CHPPM, 1999; U.S. Army Toxic and Hazardous Materials Agency, 1977). In addition, Range I was described as a location with "possible hot disposal pits." Although no definition of hot disposal pits was provided (U.S. Army Toxic and Hazardous Materials Agency, 1977), the phrase could imply activities associated with burial of CWM, contaminated soil, drums, or possible munitions. Lewisite was used in an exercise in and around the fenced area; however, no samples have been collected for analysis of Lewisite and its breakdown products (CHPPM, 1999).

U.S. Army (1979). According to Roy F. Weston, Inc. (1990), the Army collected surface soil samples for analysis for distilled mustard (HD) in 1979. The results did not indicate the presence of HD. The 1999 CHPPM draft report cites the ESE *Reassessment of FTMC Report, Anniston, Alabama, Report No. 110A* (ESE, 1984), which recommended that due to the possible existence of isolated pockets of live agent, use of the subsurface (such as excavation activities) should be prohibited. Details of the Army sampling event, such as sample locations and collection techniques, were not provided.

SAIC (1991/1992). Science Applications International Corporation (SAIC) conducted an SI at Range I, Parcel 201(7), in October 1991 and April 1992 (SAIC, 1993). During the SI, two soil borings were installed at the site and advanced to a depth of 67 inches below ground surface (bgs). Two soil samples were collected from each soil boring and field-screened for the presence of HD, GB, and nerve agents using a miniature continuous air monitoring system (MINICAMS) analyzer. The MINICAMS results did not indicate the presence of HD, GB, or nerve agent (VX). The soil samples were also submitted for laboratory analysis of HD, GB, and VX degradation products. HD, GB, and VX degradation products were not detected in the soil samples.

IT (2000). IT conducted a surface geophysical survey at Range I, Parcel 201(7) in October 2000 to identify buried drums or munitions suggested in historical reports. The geophysical survey, which encompassed an area of approximately 40,000 square feet (0.92 acres), did not reveal any anomalies representing buried drums or munitions.

4.0 SI FIELD ACTIVITIES

The proposed SI field activities at Range I, Parcel 201(7) include a geophysical survey and the collection of environmental samples for chemical analysis. Because UXO may be present at the

site, IT will also conduct UXO avoidance activities, including surface sweeps and downhole surveys of soil borings in addition to conducting utility clearances before installing soil borings. A UXO sweep will be conducted over areas that will be included in the sampling and surveying activities to identify UXO on or near the surface that may present a hazard to on-site workers during field activities. Low-sensitivity magnetometers will be used to locate surface and shallow-buried metal objects. UXO located on the surface will be identified and conspicuously marked for easy avoidance.

Based on previous work conducted at the site, CWM screening with MINICAMS is not required at Range I, Parcel 201(7).

5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on previous investigations conducted at Range I, and the UXO avoidance and geophysical survey activities that will be conducted during SI field activities, the probability of encountering CWM at the site during field activities is deemed remote. Per AR 385-10, Category 4 (remote) sites are those at which it is unlikely but possible to encounter CWM during proposed site activities.

6.0 REFERENCES

Environmental Science and Engineering, Inc. (ESE), 1998, ***Final Environmental Baseline Survey, Fort McClellan, Alabama***, prepared for U.S. Army Environmental Center, Aberdeen Proving Ground, Maryland, January.

Environmental Science and Engineering, Inc. (ESE), 1984, ***Reassessment of Fort McClellan, Anniston, Alabama, Report No. 110A***, January.

IT Corporation (IT), 2001, ***Final Site-Specific Field Sampling Plan Attachment, Range I, Parcel 201(7), Fort McClellan, Calhoun County, Alabama,*** February.

Science Applications International Corporation (SAIC), 1993, ***Site Investigation Report, Fort McClellan, Alabama***, August 31.

U.S. Army Center for Health Promotion and Preventive Medicine (CHPPM), 1999, ***Draft Preliminary Assessment No. 38-EH-1775-99, Fort McClellan Army National Guard Training Center, Fort McClellan, Alabama***, May 28 – June 17.

U.S. Army Toxic and Hazardous Materials Agency, 1977, ***Installation Assessment of Fort McClellan, Report No. 110, Volume I of II***, April.

Roy F. Weston, Inc., 1990, ***Final USATHAMA Task Order 11, Enhanced Preliminary Assessment, Fort McClellan, Anniston, Alabama***, prepared for U.S. Army Toxic and Hazardous Materials Agency, Aberdeen Proving Ground, Maryland, December.

Approved by:

This document has been prepared in accordance with AR 385-10, which requires that a risk assessment be conducted at potential CWM sites. I concur with the conclusions presented in this risk assessment document regarding the potential for encountering CWM during SI field activities at Range I, Parcel 201(7).

Ronald M. Levy
BRAC Environmental Coordinator
Fort McClellan, Alabama

22 July 01
Date

ATTACHMENT B

RISK ASSESSMENT REPORT
FORMER AGENT TRAINING AREA, RANGE K, PARCEL 203(7)

Risk Assessment Report
Former Agent Training Area, Range K, Parcel 203(7)
Fort McClellan, Calhoun County, Alabama

1.0 INTRODUCTION

The U.S. Army is conducting environmental studies of the impact of suspected contaminants at Fort McClellan (FTMC) in Calhoun County, Alabama, under the management of the U.S. Army Corps of Engineers (USACE)-Mobile District. The USACE contracted with IT Corporation (IT) to perform a remedial investigation (RI) at the Former Agent Training Area, Range K, Parcel 203(7). In accordance with Army Regulation (AR) 385-10, *Applicability of Biological Warfare Materiel and Non-Stockpile Chemical Warfare Materiel Response Activity Interim Guidance*, this risk assessment report is provided to determine the probability of encountering chemical warfare material (CWM) during RI field activities at the Former Agent Training Area, Range K.

2.0 SITE BACKGROUND

Range K is a 2-acre former chemical agent training area located in the northwestern portion of Pelham Range (Environmental Science Engineering [ESE], 1998). The complete time of operation and the precise nature of the activities conducted at the site have not been documented. A reported shell tapping area where rounds were opened and decontaminated was operated at Range K prior to 1961 and continued through the summer of 1963 (ESE, 1998). During training exercises, standard training practice included breaking open a 155-millimeter (mm) distilled mustard (HD), a 105-mm sarin (GB), and a 4.2-inch phosgene (CG) mortar round. The site has been physically rearranged by bulldozing, and records indicate that the area was cleared for surface usage in 1967 (ESE, 1998). Spent rounds, decontamination agent (noncorrosive) (DANC) cans, and diethylenetriamine, sodium hydroxide, ethylene glycol monomethyl ether (DS2) cans were observed by the U.S. Army Environmental Center (USAEC) beyond a tree line to the south and west in November 1992 and have been confirmed during subsequent site trips. A tapped 155-mm round (HD) and a tapped 105-mm round (GB) were observed at the site (Science Applications International Corporation [SAIC], 1995; U.S. Army Center for Health Promotion and Preventive Medicine, 1999). The Army presently uses Range K and the surrounding areas for ongoing military training maneuvers and bivouac activities.

3.0 PREVIOUS INVESTIGATIONS

Seventeen sites, including Range K, were identified for initial investigation as a result of the findings of a 1989 report submitted by FTMC to the U.S. Environmental Protection Agency

(EPA). Previous investigations have been conducted at Range K, as discussed in the following paragraphs.

SAIC (1993). Between June 1991 and July 1993, SAIC conducted a site investigation (SI) to determine the presence and nature of potential environmental contamination at the 17 sites identified by the USAEC, including Range K (SAIC, 1993). In April 1992, a sediment sample was collected at Range K from a drainage area with ponded water, approximately 5 feet in diameter. The sediment sample was screened in the field for the presence of HD, GB, and VX, and was analyzed in the laboratory for HD degradation products, GB degradation products, and VX degradation products. CWM degradation products were not detected in the sample.

An electromagnetic (EM) survey was conducted to investigate the presence or absence of buried objects. An anomaly was reported 22 to 54 feet from the origin along a transect where several partially buried drums were located. The remainder of the EM profiles appeared to be undisturbed. An independent site visit by USAEC in November 1992 identified DS2 cans, HD and GB rounds, and other ordnance in the southern portion of the site. Based on this discovery, the SI report concluded that Range K should be further evaluated through surface reconnaissance, geophysical survey, and soil sampling.

SAIC (1995). A remedial investigation/feasibility study (RI/FS) (SAIC, 1995a; SAIC 1995b) was conducted by SAIC at Range K. Four shallow soil samples were collected at the site for the analysis of CWM breakdown products and explosive compounds. Nitroglycerin was detected at one sampling location at a concentration of 0.962 micrograms per kilogram. CWM breakdown products were not detected in the samples.

As part of the RI/FS, SAIC also conducted a geophysical survey. Time Domain EM (TDEM) and magnetometer measurements were obtained over a gridded area measuring 280 feet by 400 feet at Range K. Four anomalies were identified in the TDEM data that indicated the presence of buried metallic material (fence posts and sectioned steel drums) at Range K. Other surficial materials (empty DANC cans, ordnance) were observed and implied their usage at the site. The magnetometer data yielded results similar to the TDEM survey. Several anomalies existed that were attributed to surficial or buried fencing material. Anomalies observed in total field contour data along the west side of the surveyed area correlated with a potential fence location and are probably buried material associated with a former barbed wire fence. Similar correlations could be made for anomalies along the south side of the plot. The magnetic anomalies correlate with two of the anomalies in the TDEM data.

The results of the tandem geophysical survey were not comprehensive due to the lack of satellite visibility from the moderately wooded site. Although the site coverage was described as poor, 14 magnetic anomalies were detected across the site. The majority of the detected anomalies were comparatively small and ranged in depth between the surface and approximately 4 feet below land surface.

Forty-five miniature continuous air monitoring system (MINICAMS) samples were also collected during the RI. HD, nerve agent (VX), and CWM were not detected in the MINICAMS samples at concentrations above time-weighted averages.

IT (2000). In 2000, IT conducted field work at Range K to provide data for a DOD relative risk site evaluation (IT, 2001). IT installed four groundwater monitoring wells and collected four surface soil samples, four subsurface soil samples, and four groundwater samples. Quicksilver, Inc. provided MINICAMS screening for CWM during the field activities. CWM was not identified during the MINICAMS screening.

4.0 RI FIELD ACTIVITIES

The proposed RI field activities at the Former Agent Training Area, Range K, Parcel 203(7) include the collection of environmental samples for chemical analysis, and the installation of groundwater monitoring wells. Because UXO may be present at the site, IT will also conduct UXO avoidance activities, including surface sweeps and downhole surveys of soil borings in addition to conducting utility clearances before installing soil borings. A UXO sweep will be conducted over areas that will be included in the sampling and surveying activities to identify UXO on or near the surface that may present a hazard to on-site workers during field activities. Low-sensitivity magnetometers will be used to locate surface and shallow-buried metal objects. UXO located on the surface will be identified and conspicuously marked for easy avoidance.

Based on previous work conducted at the site, CWM screening with MINICAMS is not required at Range K, Parcel 203(7).

5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on previous investigations conducted at Range K, including geophysical survey and CWM sampling activities, and the UXO avoidance activities that will be conducted during RI field activities, the probability of encountering CWM at the site during field activities is deemed remote. Per AR 385-10, Category 4 (remote) sites are those at which it is unlikely but possible to encounter CWM during proposed site activities.

6.0 REFERENCES

Environmental Science and Engineering, Inc. (ESE), 1998, ***Final Environmental Baseline Survey, Fort McClellan, Alabama***, prepared for U.S. Army Environmental Center, Aberdeen Proving Ground, Maryland, January.

IT Corporation (IT), 2001, ***Final Remedial Investigation Site-Specific Field Sampling Plan Attachment, Range K, Former Agent Training Area, Parcel 203(7), Fort McClellan, Calhoun County, Alabama,*** March.

Science Application International Corporation (SAIC), 1995a, ***Draft Remedial Investigation Report, Fort McClellan, Alabama***, prepared for U.S. Army Environmental Center, Aberdeen Proving Ground, Maryland, August.

Science Application International Corporation (SAIC), 1995b, ***Preliminary Draft Feasibility Study Report, Fort McClellan, Alabama***, prepared for U.S. Army Environmental Center, Aberdeen Proving Ground, Maryland, October.

Science Application International Corporation (SAIC), 1993, ***Site Investigation Report, Fort McClellan, Alabama***, prepared for U.S. Army Environmental Center, Installation Restoration Division, Aberdeen Proving Ground, Maryland, August 31.

U.S. Army Center for Health Promotion and Preventive Medicine (CHPPM), 1999, ***Draft Preliminary Assessment No. 38-EH-1775-99, Fort McClellan Army National Guard Training Center, Fort McClellan, Alabama***, May 28-June 17.

Approved by:

This document has been prepared in accordance with AR 385-10, which requires that a risk assessment be conducted at potential CWM sites. I concur with the conclusions presented in this risk assessment document regarding the potential for encountering CWM during RI field activities at the Former Agent Training Area, Range K, Parcel 203(7).

Ronald M. Levy
BRAC Environmental Coordinator
Fort McClellan, Alabama

22 July 01
Date

ATTACHMENT C

PREVIOUS RISK ASSESSMENT REPORTS APPROVED BY FORT McCLELLAN

RISK ASSESSMENT REPORT
FORMER AGENT TRAINING AREA, RANGE K, PARCEL 203(7)
FORT MCCLELLAN, CALHOUN COUNTY, ALABAMA

1.0 INTRODUCTION

The U.S. Army is conducting studies for the environmental impact of suspected contaminants at Fort McClellan (FTMC) in Calhoun County, Alabama, under the management of the U.S. Army Corps of Engineers (USACE)-Mobile District. The USACE has contracted IT Corporation (IT) to provide environmental services for sample collection and analysis activities at the Former Agent Training Area, Range K, Parcel 203(7). In accordance with AR 385-10, *Applicability of Biological Warfare Materiel and Non-Stockpile Chemical Warfare Materiel Response Activity Interim Guidance*, this risk assessment report is provided to determine the probability of encountering chemical warfare material (CWM) during field activities at the Former Agent Training Area, Range K.

2.0 BACKGROUND

Range K is a 2-acre former chemical agent training area located in the northwestern portion of Pelham Range (Environmental Science Engineering [ESE], 1998). The complete time of operation and the precise nature of the activities conducted at the site have not been documented. A reported shell tapping area where rounds were opened and decontaminated was operated at Range K prior to 1961 and continued through the summer of 1963 (ESE, 1998). During training exercises, breaking open one 155-millimeter (mm) distilled mustard (HD), one 105-mm Sarin (GB), and one 4.2-inch phosgene (CG) mortar round was standard training practice. The site has been physically rearranged by bulldozing, and records indicate that the area was cleared for surface usage in 1967 (ESE, 1998). Spent rounds, decontamination agent (noncorrosive) (DANC) cans, and diethylenetriamine, sodium hydroxide, ethylene glycol monomethyl ether (DS-2) cans were observed by the U.S. Army Environmental Center (USAEC) beyond a tree line to the south and west in November 1992 and have been confirmed during subsequent site trips. A tapped 155-mm round (HD) and a tapped 105-mm round (GB) were observed at the site (Science Applications International Corporation [SAIC], 1995; U.S. Army Center for Health Promotion and Preventive Medicine, 1999). The Army presently uses Range K and the surrounding areas for ongoing military training maneuvers and bivouac activities.

3.0 PREVIOUS INVESTIGATIONS

Seventeen sites, including Range K, were identified for initial investigation as a result of the findings of a 1989 report submitted by FTMC to the U.S. Environmental Protection Agency (EPA). Between June 1991 and July 1993, SAIC conducted a site investigation (SI) (SAIC, 1993) to determine the presence and nature of potential environmental contamination at the 17 sites identified by the USAEC. On April 27, 1992, a sediment sample, RK-D01, was collected at Range K from a sampling location in a ponded drainage area approximately 5 feet in diameter. Laboratory analysis of the sediment sample did not detect the presence of chemical agent breakdown products. An electromagnetic (EM) survey was conducted to investigate the presence or absence of buried objects. An anomaly was reported 22 to 54 feet from the origin along a transect where several partially buried drums were located. The remainder of the EM profiles appeared to be undisturbed.

A remedial investigation/feasibility study (RI/FS) (SAIC, 1995a,b) was conducted at 12 sites, including Range K. Four shallow soil samples were collected at Range K for the analysis of HD breakdown products and explosive compounds. According to the RI report, an unconfirmed concentration, 0.96 micrograms per gram (μg/g), of nitroglycerin (NG) was detected at one sampling location (SAIC, 1999). There were not any HD breakdown products detected.

In a geophysical survey by SAIC, Time Domain Electromagnetic (TDEM) and magnetometer measurements were obtained over a gridded area measuring 280 feet by 400 feet at Range K. Four anomalies were identified in the TDEM data that indicated the presence of buried metallic material (fence posts and sectioned steel drums) at Range K. Other surficial materials (empty DANC cans, ordnance) were observed and implied their usage at the site (SAIC, 1999). The magnetometer data yielded results similar to the TDEM survey. Several anomalies existed that were attributed to surficial or buried fencing material. Anomalies observed in total field contour data along the west side of the surveyed area correlated with a potential fence location and are probably buried material associated with a former barbed wire fence. Similar correlations could be made for anomalies along the south side of the plot. The magnetic anomalies correlate with two of the anomalies in the TDEM data.

The results of the tandem geophysical survey were not comprehensive due to the lack of satellite visibility from the moderately wooded site. Although the site coverage was described as poor, 14 magnetic anomalies were detected across the site. The majority of the detected anomalies were comparatively small and ranged in depth between the surface and approximately 4 feet below land surface.

Forty-five Miniature Continuous Air Monitoring System (MINICAMS) samples collected at the site did not detect HD, O-ethyl-S(di-isopropylaminoethyl)-methylphosphonothiolate (nerve agent) (VX), or CWM during the RI above the time weighted average (TWA).

4.0 FIELD SAMPLING ACTIVITIES

The environmental sampling performed during the site investigation at the Former Agent Training Area, Range K, Parcel 203(7) will include the collection of surface soil, subsurface soil, and groundwater samples for chemical analysis.

Based on historic use, the presence of UXO is possible at Range K. Therefore, IT will conduct UXO avoidance activities, including surface sweeps and downhole surveys of soil borings in addition to conducting utility clearances before installing soil borings. A UXO sweep will be conducted over areas that will be included in the sampling and surveying activities to identify UXO on or near the surface that may present a hazard to on-site workers during field activities. Low-sensitivity magnetometers will be used to locate surface and shallow-buried metal objects. UXO located on the surface will be identified and conspicuously marked for easy avoidance.

Based on previous work conducted at this site, CWM screening with MINICAMS is not required.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on previous geophysical survey and CWM sampling activities and the UXO avoidance activities that will be conducted during field activities at the Former Agent Training Area, Range K, the probability of encountering CWM at the site during field activities is deemed remote. Per AR 385-10, Category 4 (remote) sites are those at which it is unlikely but possible to encounter CWM during proposed site activities.

6.0 REFERENCES

Environmental Science and Engineering, Inc. (ESE), 1998, *Final Environmental Baseline Survey, Fort McClellan, Alabama*, prepared for U.S. Army Environmental Center, Aberdeen Proving Ground, Maryland, January.

Science Application International Corporation (SAIC), 1999, *Draft Final Remedial Investigation/Baseline Risk Assessment Report, Fort McClellan, Alabama*, prepared for U.S. Army Corps of Engineers, Mobile District, Mobile, Alabama, February.

Science Application International Corporation (SAIC), 1995a, *Draft, Remedial Investigation Report, Fort McClellan, Alabama*, prepared for U.S. Army Environmental Center, Aberdeen Proving Ground, Maryland, August.

Science Application International Corporation (SAIC), 1995b, *Preliminary Draft Feasibility Study Report, Fort McClellan, Alabama*, prepared for U.S. Army Environmental Center, Aberdeen Proving Ground, Maryland, October.

Science Application International Corporation (SAIC), 1993, *Site Investigation Report, Fort McClellan, Alabama*, prepared for U.S. Army Environmental Center, Installation Restoration Division, Aberdeen Proving Ground, Maryland, August 31.

U.S. Army Center for Health Promotion and Preventive Medicine (CHPPM), 1999, *Draft Preliminary Assessment No. 38-EH-1774-99, Fort McClellan Army National Guard Training Center, Fort McClellan, Alabama*, May 28-June 17.

Prepared under direction of:

Ellis C. Pope

Ellis Pope
Environmental Engineer
U.S. Army Corps of Engineers, Mobile District
Mobile, Alabama

2/3/00
Date

Approval

This document has been prepared in accordance with AR 385-10, which requires that a risk assessment be conducted at potential CWM sites. I concur with the conclusions presented in this risk assessment document regarding the potential for encountering CWM during field activities at the Former Agent Training Area, Range K, Parcel 203(7).

Ron Levy
Fort McClellan BRAC Environmental Coordinator
Fort McClellan, Alabama

3 Feb 00
Date