Final
Site-Specific Unexploded Ordnance Safety Plan Attachment
Site Investigation at the Former Toxic Gas Area – Pelham Range, Parcel 211(7)
Fort McClellan, Calhoun County, Alabama

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Final
Site-Specific Unexploded Ordnance Safety Plan Attachment Site Investigation at the Former Toxic Gas Area – Pelham Range, Parcel 211(7)

I have read and approve this site-specific unexploded ordnance (UXO) safety plan attachment for the Former Toxic Gas Area – Pelham Range, Parcel 211(7) at Fort McClellan, Alabama, with respect to project hazards, regulatory requirements, and IT Corporation UXO procedures.

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UXO Technical Manager

19 JUL 02
Date

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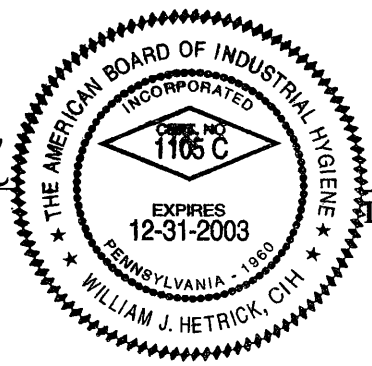

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Date

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List of Acronyms

See Attachment 1, List of Abbreviations and Acronyms, of the Site-Specific Field Sampling Plan Attachment contained in this binder.

1.0 Introduction

This document defines anomaly avoidance procedures for activities to be performed by IT Corporation (IT) unexploded ordnance (UXO) personnel in conjunction with the site investigation at the Former Toxic Gas Area at Pelham Range, Parcel 211(7), at Fort McClellan (FTMC), Calhoun County, Alabama. This document is not a stand-alone document; it must be used in conjunction with the *Fort McClellan Unexploded Ordnance Supplementary Procedures* (IT, 2001), attached as Attachment 1.

IT UXO personnel will perform visual surveys, assisted by hand-held magnetometers and metal detectors, to support the collection of surface soil, subsurface soil, groundwater, surface water, sediment samples and/or other types of samples as required for chemical analysis at Parcel 211(7). Additionally, UXO personnel will provide escort duties during all non-intrusive site visits. UXO escort is required because of the activities at Pelham Range. The purpose is to avoid any ordnance and explosives (OE) during all site activities. Intrusive anomaly investigation is not authorized for this site work.

The Former Toxic Gas Area, Parcel 211(7), is located in the northwest portion of Pelham Range. The oval-shaped area consists of approximately 300 acres of hilly, vegetated terrain that encompasses all of Training Area 10B and extends into parts of Training Areas 9A, 9B, and 10A. According to the U.S. Army Center for Health Promotion and Preventive Medicine (CHPPM), the Toxic Gas Area was delineated on a 1958 maneuver area map of Pelham Range and was used until the early 1960s. Training Area 10B (Parcel 211[7]) is shown as a chemical area on Plate 2 of the U.S. Army Corps of Engineers (USACE) December 1999 *Archives Search Report, Ordnance and Explosives Chemical Warfare Materials, Pelham Range, Anniston Alabama.* The Environmental Baseline Survey (EBS) states that the area was used for training exercises with chloroacetophenone (CN), ortho-chlorobenzylidene-malononitrile (CS), chlorine gas (CL), and smoke. Currently, the site is posted with signs reading "Danger Toxic Gas Area, Keep Out;" however, unauthorized access to the area is possible.

The EBS extended the boundary of Parcel 211(7) to the west and southwest of Training Area 10B to include areas of suspected toxic chemical agent storage and disposal in Training Areas 9A and 10A. The EBS reports that storage and disposal sites were located in fenced areas a short distance from the road leading to Gate 10 (west of the Toxic Gas Area) and on the east side of the road leading to Range I. Little is known about the locations of the disposal areas; however, it

is believed that toxic chemical agents were stored and/or disposed of due to restrictions on transportation of toxic chemical agent which precluded returning it to Fort McClellan.

Range K, Parcel 203(7), Range L (Lima Pond), Parcel 204(7), and a chemical obstacle course that included Station No. 6 are all located within the Toxic Gas Area (Environmental Science and Engineering [ESE], 1998). The EBS also reported a personnel decontamination area and an identification/decontamination training station in the southern portion of the Toxic Gas Area (ESE, 1998). Range K, Range L (Lima Pond), and Station No. 6 of the chemical obstacle course have previously been investigated during separate site investigations (SI).

The *Archives Search Report* for Pelham Range states that in the 1950s the Chemical Corps School at Fort McClellan constructed a chemical, biological, and radiological (CBR) tactical training exercise course at Pelham Range in the Toxic Gas Area. CBR officers and enlisted soldiers received realistic training at a designated, seven-station field course (USACE, 1999). The field course consisted of and involved the following types of ordnance:

- Station No. 1 included simulated machine-gun fire, blocks of nitrostarch, blasting caps, shell simulators, and CN-adamsite (DM) grenades.
- Station No. 2 included CN-DM grenades and simulator shell bursts.
- Station No. 3 included electric blasting caps, dud chemical shells, shell simulators, simulated machine-gun fire, and tubes of chloropicrin (PS) and phosgene (CG).
- Station No. 4 included blasting caps, M117 booby-trap simulators, shell simulators, and PS.
- Station No. 5 included radioactive sources. These were placed in a man-made crater (Lima Pond) to simulate the residue from an atomic bomb.
- Station No. 6 included electric blasting caps, detonating cord, molasses residuum (MR), distilled mustard (HD), and simulated armor-piercing mines.
- Station No. 7 included white phosphorous, M15 smoke grenades, HC smoke grenades, blocks of nitrostarch, M2 flame throwers, electric blasting caps, M5 smoke pots, shell simulators, and petarey thritol tetranitrate (PETN) detonating cord.

The obstacle course concluded with a personnel decontamination station consisting of a decontamination truck for washing hands and faces (CHPPM, 1999). The chemical obstacle course was used from approximately 1955 to 1963 (CHPPM, 1999).

A personnel decontamination station was established at the south side of the Toxic Gas Area (north of the burial mound at Rideout Field) and was used in conjunction with the Former Decontamination Training Area (Parcel 207[7]) (ESE, 1998). A detection and identification/decontamination training station was also located within the southern portion of the Toxic Gas Area (ESE, 1998). At this station, training exercises consisted of contaminating two World War II-era tanks with mustard and allowing trainees to perform detection tests. A second group of trainees would decontaminate the tanks using noncorrosive decontamination agent (DANC) (ESE, 1998). The EBS states that mustard was the only chemical warfare agent used at this station.

A survey conducted by the U.S. Army Chemical School in 1967 declared the chemical obstacle course area free of contamination (CHPPM, 1999). All empty rounds, containers, and miscellaneous items were policed and disposed of in accordance with standard operating procedures (not specified). The area was bulldozed and decontaminated. Based on existing information, the report concluded there appeared to be no significant risk for surface activity; however, the exact location of the chemical obstacle course was unknown (CHPPM, 1999).

IT conducted site walks of Parcel 211(7) at Training Areas 9A, 9B, 10A, and 10B in July/August 2001 and January 2002. In Training Areas 9A and 9B, both sides of the road leading to Gate 10 were walked; however, no storage and/or disposal sites were located. Training Area 10B was walked from Range I to the intersection of the road south of Training Area 10B. North of Range I, three metal fence posts were observed in an east-west trending direction. A ground scar approximately 25 feet by 15 feet was noted between two of the posts.

Training Area 10B was walked for evidence of chemical warfare material (CWM). Along the eastern side of the site, three 55-gallon drums were found in various conditions, one labeled as a fog oil storage drum (empty), one sitting upright with a negligible amount of moisture, and the third turned on its side and approximately half full of liquid. East of Station No. 6, four 5-feet by 3-feet tanks, labeled "Chemical Warfare Service USA, No. M33A1" were observed. Two of the tanks were torn apart, two were intact. Two World War II-era tanks were noted in the south-

central portion of Training Area 10B, east of the unimproved road to Lima Pond. Two more World War II-era tanks were noted on a hillside, east of the previously mentioned tanks. Both sets were intact, one with a sign reading "Contaminated, Keep Off." One supertropical bleach (STB) drum was observed in the southeastern portion of the site near a decontamination station described in the EBS. Two bunkers separated by a large trench were observed on a hillside near the location of former Station No. 7. A fragment of an M2 flame-thrower was also noted at this location and several circular depressions were observed west of the bunkers. Several metal canisters were found to the west of Station No. 6, in and around depressions that appear to be former bunkers or foxholes. Small arms blank casings, foxholes, depressions, and discarded training materials were found throughout the Toxic Gas Area.

Chemical agents and decontamination agents reportedly used at the Former Toxic Gas Area included:

- Chloroacetophenone (CN)
- Ortho-chlorobenzylidene-malononitrile (CS)
- Chlorine gas (CL)
- Chloropicrin (PS)
- Decontamination agent (noncorrosive) (DANC)
- Decontamination Solution Number 2 (DS2)
- Adamsite (DM)
- Phosgene (CG)
- Distilled mustard (HD)
- Supertropical bleach (STB).

The presence of UXO is possible at the Former Toxic Gas Area, Parcel 211(7), because it is located within Pelham Range, which is an active range. Therefore, IT will conduct UXO avoidance activities as outlined in Appendix E of the installation-wide sampling and analysis plan (SAP) and the attached site-specific UXO safety plan prior to initiating field sampling activities at Parcel 211(7). The surface UXO avoidance sweeps and downhole surveys will be conducted to identify anomalies for the purpose of UXO avoidance.

2.0 UXO Team Composition

UXO team and personnel requirements will be in accordance with EP 75-1-2 (USACE, 2000) and installation-wide sampling and analysis plan (SAP) (IT, 2002) for FTMC. A UXO team will be on site during all site visits, sampling or intrusive activities where OE is suspected.

3.0 Responsibilities

The UXO Team Leader is responsible for ensuring that personnel performing UXO tasks at FTMC have the required qualifications. The UXO Team Leader supervises and coordinates UXO work activities.

The UXO team member(s) will provide UXO avoidance, explosive ordnance recognition, location, and safety functions for IT employees and any subcontractors during sampling activities. Sampling activities at this site may include surface and subsurface soil sampling, drilling and installing monitoring wells, sampling of monitoring wells, during sampling, a geophysical survey, survey of sample points, and safe access and egress to and from the site in support of hazardous toxic and radiologic waste (HTRW) operations.

4.0 Authority

UXO personnel are authorized to perform UXO avoidance activities only. UXO personnel are not permitted to initiate OE investigative or disposal activities.

5.0 UXO Avoidance Procedures to Support HTRW Sampling Activities at FTMC

The scope of work for site investigation activities at Parcel 211(7) includes the following UXO tasks:

- Provide UXO avoidance support during the collection 17 surface soil samples, 13 subsurface samples, 1 drum sample, and 10 groundwater samples, and a geophysical survey. Sample locations are defined in Chapter 4.0 of the site-specific field sampling plan contained in this binder.

- Provide downhole UXO support for all intrusive drilling to determine buried downhole hazards.

- Provide surveys for all intrusive field activities (e.g., digging, fence post driving, grading, or excavation).

- Provide UXO escort duties.

Since these areas may contain OE contamination, the UXO team must conduct a surface access survey for UXO before any type of activities commence. This includes foot and vehicular traffic. UXO avoidance activities at Parcel 211(7) will include:

a) Access Corridors and Sampling Sites

(1) Access surveys are defined as those UXO sweeps performed to allow entry to and exit from sampling sites. In cases where hand auger sampling is required, the UXO team may consist of a UXO technician and sampling personnel. The UXO technician will sweep ahead of the non-UXO technician team member and mark a clear route. Access surveys will begin in a known clear area and proceed by the most direct route to the sampling site. The boundaries of the access route, whether for vehicle or personnel traffic, and the area of the sampling site, will be marked with white tape or white pin flags.

(2) If an OE item is found during the survey, the location will be conspicuously marked with a red pin flag and avoided by altering the route. Additionally, UXO personnel will complete the IT FTMC "Unexploded Ordnance Report Form." Subsurface anomalies will be marked with a yellow flag.

(3) The boundaries of the access route and sampling site will be recorded in the IT FTMC "UXO Sketch Log" by the UXO technician. Additionally, anomaly locations will be recorded on this form.

(4) Instrumentation used at this site will include the Schonstedt GA 72, the CST Corporation Magna-Trak 102, or the Whites Spectrum XLT Metal Detector. Additionally, the Schonstedt MG-220 or MG-230 will be set up for downhole monitoring. All equipment will be operated as specified in the appropriate operator's manual. All equipment will be function tested prior to use following the procedure in paragraph 3.2, *FTMC UXO Supplementary Procedures* (IT, 2001) and the operator's instructions. The Whites Metal Detector will be used in conjunction with hand-held

magnetometers in areas of high concentrations of rocks with a magnetic signature to assist in eliminating anomalies created by "hot rocks."

(5) The access route will be twice as wide as the widest vehicle that will use the route. Footpath lanes will be a minimum of three feet wide.

(6) If surface OE or subsurface anomalies are encountered that cannot be avoided, the access route must be diverted to avoid contact. No personnel will be allowed outside of the surveyed areas without a UXO escort. No unescorted access is permitted inside the corridor area until a survey has been completed and boundaries established.

(7) At the actual investigation site, the UXO team must also complete a survey of an area sufficient to support mechanical excavation equipment maneuverability, parking of support vehicles, and establishment of decontamination stations. As a minimum, the surveyed area should have a dimension in all directions equal to twice the length of the largest vehicle or piece of equipment to be brought on site. White pin flags or tape will be used to mark the boundaries of the surveyed site.

(8) Surface soil samples are normally collected at depths of 0 to 12 inches below ground surface. The UXO team will survey the area of the soil sampling site for any indication of OE. Sampling is not permitted at any location where an anomaly has been detected.

(9) Tracked or other vehicles whose movement would disturb the soil are authorized for use only in areas that have been surveyed and in which no anomalies have been detected.

(10) If grading or soil movement is required to support access corridor development or a sampling location, UXO personnel will perform a survey. After an area has been surveyed and no anomalies have been detected, soil can be removed at a rate of no more than one foot per cut. If additional grading is required, another survey will be performed after each one foot of soil has been removed.

(11) Erosion and weathering will typically cause some OE items to leach to the surface or otherwise be uncovered. In cases where access corridors or sampling sites have not been surveyed or traversed for a period of time, additional surveys may be required. The decision regarding the performance of follow-on surveys will be made by the site superintendent with input provided by the FTMC UXO Safety Officer and FTMC UXO Team Leader. The decision will be based on such factors as: the amount of time since the last survey was performed, the weather during this

period, the terrain in the area of concern, the former use of the area, and the type of quantity of OE found during initial surveys.

(12) Incremental geophysical surveys at drill hole locations will be initially accomplished using a hand-auger to install a pilot hole. An access survey of the immediate vicinity of the pilot hole location will precede the installation of the pilot hole. The UXO team will use a manual or mechanical portable auger to install the pilot hole. The augured hole will be inspected for anomalies with a geophysical instrument (configured for downhole utilization) in two-foot increments as the hole is advanced below ground surface. Hand augering of a hole will not proceed if an anomaly is detected that cannot be positively identified as inert material. If a suspect OE item is encountered, the sampling personnel must select a new drill hole location. The pilot hole will also be inspected with the geophysical instrument upon reaching the final depth of the hand augered hole, providing a total clearance depth equal to pilot hole depth plus 2 feet. If the proposed site is still free of magnetic anomalies, the drilling equipment may be brought on site and utilized. The UXO team will continue to inspect the drill hole for anomalies at 2-foot increments as the drilling is advanced from the clearance depth of the pilot hole until a depth of 12 feet is reached.

b) Vegetation Removal

In cases where large trees or other vegetation removal is required to support access or sampling operations, the procedures in paragraph 4.2, *FTMC UXO Supplementary Procedures* (IT, 2001) will be followed.

c) Magnetometer/Metal Detector Checkout and Field Procedures

The procedures in paragraph 3.0, *FTMC UXO Supplementary Procedures* (IT, 2001) will be followed. Since Pelham Range is used as an impact area, the function test will utilize the function test ordnance that most closely approximates the 75 mm projectile. The UXO Team Leader may designate another function test item if other types of ordnance are discovered.

d) UXO Logbooks and Documentation

All UXO personnel identified in paragraph 5.0, *FTMC UXO Supplementary Procedures* (IT, 2001) will maintain a logbook in accordance with that procedure.

6.0 Safety

In addition to the requirements of the site-specific safety and health plan prepared for this site, the UXO personnel will ensure the following:

a) During the access and subsurface surveys conducted with a geophysical instrument, the UXO team members will not wear safety shoes or other footwear that would cause the instrument to present a false response.

b) The UXO team will not be required to wear protective helmets unless an overhead hazard is present.

c) The FTMC UXO Safety Officer will monitor UXO activities to ensure compliance with applicable safety requirements.

d) The FTMC UXO Safety Officer will certify that all FTMC UXO workers are capable of performing UXO activities at FTMC based on observation of work performance.

e) The FTMC UXO Safety Officer is responsible for all site-specific UXO training.

f) The UXO technician on site will advise project personnel regarding all evacuation and/or exclusion zones as appropriate. The UXO technician will monitor all sampling site activities to ensure that only the minimum number of personnel are present on site.

7.0 Quality

The IT FTMC UXO Quality Control Officer will follow quality control instructions and procedures listed in Section 9.0 of the installation-wide OE management plan contained in Volume IV of the SAP (IT, 2002) appropriate to this task and the FTMC UXO Supplementary Procedures. The IT FTMC UXO Quality Control Officer will also utilize the "UXO Avoidance Quality Control Report" to document his activities. Copies of this form will be provided to the IT quality assurance representative upon request.

8.0 References

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

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, ***Fort McClellan Unexploded Ordnance Supplementary Procedures***, June.

IT Corporation (IT), 2002, ***Draft Revision 3, Installation-Wide Sampling and Analysis Plan, Fort McClellan, Calhoun County, Alabama***, February.

U. S. Army Corps of Engineers (USACE), 2000, ***Engineering Publication, EP 75-1-2, Unexploded Ordnance (UXO) Support During Hazardous, Toxic, and Radiological (HTRW) and Construction Activities,*** 20 November.

U.S. Army Corps of Engineers (USACE), 1999, ***Archives Search Report, Ordnance and Explosives Chemical Warfare Materials, Pelham Range, Anniston, Alabama,*** December.

ATTACHMENT 1

FORT MCCLELLAN UNEXPLODED ORDNANCE SUPPLEMENTARY PROCEDURES

FTMC UXO SUPPLEMENTARY PROCEDURES

Subject: Ordnance and Explosives

1.0 INTRODUCTION

IT Corporation (IT) has been retained by the U.S. Army Corps of Engineers-Mobile District, under Contract Number DACA21-96-D-0018, to provide environmental services related to Base realignment and closure (BRAC) of Fort McClellan, Alabama. The Installation-Wide Ordnance and Explosives (OE) Management Plan for Fort McClellan (FTMC) was prepared by IT Corporation and submitted as a final document in March 2000. The Installation-Wide OE Management Plan was prepared to provide general guidance for conducting unexploded ordnance (UXO) work associated with hazardous, toxic, and radiological waste (HTRW) investigations and remedial activities currently in progress at FTMC. IT Corporation prepares site-specific field sampling, health and safety, and UXO safety plans for sites where fieldwork will occur that may potentially contain OE. A UXO Safety Plan is not prepared for sites that are not reported to be in areas containing OE.

1.1 Purpose

This document is intended to provide procedures to the field staff that outline UXO operations and clarify activities currently permitted under "anomaly avoidance." The document is not intended to replace any of the project documents currently approved; rather, it is intended to complement those documents with additional information that allows successful completion of the job.

2.0 FTMC EMPLOYEE ORIENTATION/TRAINING AND CERTIFICATION

The IT FTMC orientation program is designed to:

- Indoctrinate new employees to FTMC-unique procedures
- Verify compliance with regulatory certification requirements
- Provide continuing instruction and updating in UXO fundamentals to sustain readiness to safely perform UXO tasks

2.1 Responsibilities

The IT OE Service Center Operations Manager will oversee the training programs and maintain a master record of UXO employee training and certification status.

The UXO person designated as the senior IT UXO individual at FTMC will schedule the orientation listed below.

The FTMC UXO Safety Officer will:

- Conduct all UXO-specific orientation and training at FTMC
- Certify that each new UXO employee is capable of performing UXO work activities at FTMC
- Maintain FTMC training files and records on each UXO technician on site reflecting his or her current training status.

2.2 UXO Employee Orientation

Every UXO employee assigned to FTMC will receive a site-specific UXO orientation in addition to training required by the Occupational Health and Safety Administration (OSHA). This orientation will include, as a minimum, the following topics:

- Local emergency response drills and procedures
- Personal protective equipment (PPE) and personnel decontamination procedures
- Ordnance recognition/UXO expected to be encountered at FTMC
- Equipment safety
- FTMC site orientation
- Chemical warfare material (CWM) awareness and procedures
- Communications procedures
- FTMC Logbook/data recording procedures
- IT administrative policies and procedures
- Magnetometer checkout procedures.

Upon completion of the UXO employee orientation, the FTMC UXO Safety Officer will monitor the performance of the new hire for at least three workdays while conducting typical UXO activities. The FTMC UXO Safety Officer will

then certify that the individual is capable of performing UXO activities at FTMC based upon satisfactory performance of the three-day period. A copy of this certification will be maintained in the individual's site FTMC training file (see example at Attachment 1).

2.3 UXO Sustainment Training

All UXO technicians have had the OSHA 40-hour hazardous waste operations and emergency response (HAZWOPER) course in order to be initially certified at FTMC. They are also required to maintain the certification with an 8-hour OSHA refresher course on an annual basis. Additionally, all IT FTMC UXO personnel will have 8 hours of site-specific annual UXO sustainment training. This training can be performed incrementally (2 hours every quarter) at the discretion of the site superintendent in coordination with the FTMC IT UXO Safety Officer. Topics will include, but are not limited to, the following subjects:

- Site-specific environmental hazards
- Site-specific UXO hazards, ordnance fuzing, functioning and precautions
- Topics which the IT UXO Team Leader or IT Safety UXO Officer determines necessary to support FTMC UXO activities

Sustainment training will be conducted for a period of no less than 8 hours. Daily safety briefings, tailgate safety meetings, and other required site-specific training are not a substitute for this training. The purpose of this training is to provide each UXO employee with site-specific UXO training over and above OSHA requirements. The site-specific UXO training will be recorded in the project file and the UXO employee's personnel file.

3.0 FTMC MAGNETOMETER/METAL DETECTOR FUNCTION TEST AND FIELD PROCEDURES

This section provides FTMC magnetometer/metal detector function tests and operating procedures to be employed at all work sites that have been identified as requiring avoidance support.

3.1 Geophysical Test Plot

The purpose of a test plot is to provide a consistent environment where the equipment can be evaluated. The location of the geophysical test plot will be inside the IT compound. It will be established as follows

- The test plot will consist of an area approximately 20 x 20 feet and clear of vegetation and magnetic anomalies, located in the IT compound next to the southeast end of the office trailers.

- Five metal test objects will be buried at depths varying from 6 inches to 24 inches. The objects will approximate the weight, diameter, and length of an MK 2 grenade, a 60mm mortar, a 2.36-inch rocket warhead, a 75mm projectile, and a 37mm projectile. Additionally, three non-ferrous test objects will be buried at a depth of 2 inches to 8 inches. A 6-inch length of 1/2-inch reinforcing rod will be placed on the surface for use as a surface check source. Items with greater mass will be buried at greater depths. Each burial location will be marked with a wooden stake located about 6 inches to the north of the object. Each stake will be assigned a reference number and will be tagged or marked to denote the depth, type of item and orientation of the item. The site will utilize native soils; no fill material will be brought in from another area. Sand will be used to cover the area to mitigate the effects of wet weather.

- For downhole magnetometer testing, a length of 2-inch PVC pipe will be buried to a depth of 36 inches. The pipe should be of sufficient length to allow at least another 24 inches to extend above the surface of the ground. A metal object will be buried at a depth of 24 inches and 24 inches from the side of the pipe. The location of the item, similar in size and mass to a 75mm projectile, will be marked with a wooden stake tagged to denote the depth, type of item, orientation, and reference number assigned.

3.2 Magnetometer/Metal Detector Check-Out Procedures

- Prior to field use, all magnetometers and metal detectors will be set up following the guidelines in the manufacturer's operating manual for the specific instrument used. Instrumentation used at this site will include the Schonstedt GA 72, the CST Corporation Magna-Trak 102, or White's Spectrum XLT Metal Detector. Additionally, the Schonstedt MG-220 or

MG-230 will be set up for downhole monitoring. All equipment will be operated in a manner consistent with instructions contained in the appropriate operator's manual. All equipment will be function-tested prior to use. The White's Metal Detector will be used in conjunction with hand-held magnetometers in areas of high concentrations of rocks with a magnetic signature, to assist in eliminating anomalies created by "hot rocks." The operating manual for each of the instruments used at FTMC will be available for use with the equipment.

- Once the instrument has been determined to be working according to the manufacturer's operating manual, the operator will perform a function test on the FTMC geophysical test plot using the detection methods described in the manual. A function test will consist of using the instrument over a minimum of three test sources. The same sources will be used during each function test to ensure consistency. The instrument detection indicator, as described in the operator's manual, will be noted in the instrument logbook. For site checks, a 6-inch length of 1/2-inch steel reinforcing rod will be available to each operator at the work site.

- Instruments that fail to reproduce a detection indication consistent with previous tests will be checked to ensure that the power supply or batteries are sufficient. If the power supply is determined to be sufficient and the operator cannot find a fault in accordance with the operator's manual, the instrument will be tagged and removed from service.

- Function tests will be performed each morning before the equipment is put into service.

- If an instrument is determined to be working improperly, the FTMC UXO Team Leader and the site superintendent will be immediately notified. Any activities performed using that instrument since its last positive test procedure will be considered invalid and will require reevaluation.

- Upon completion of the function test, the "Magnetometer/Metal Detector Functions Test Data Sheet" (Attachment 2) and the equipment logbook will be filled out.

- After an instrument has been function-tested at the beginning of each day, the instrument will be checked at least once during every hour of use or each time the instrument is turned on after having been turned off. This check will consist of dropping the 6-inch length of 1/2-inch reinforcing rod in a clear area and passing the detector over the rod in a manner consistent with the operator's instructions. The instrument indication will be compared to the indication produced during the morning function test. Instruments that fail to produce a consistent indication will be checked and removed from service as required.

3.3 Equipment Documentation

Each piece of equipment will be assigned a logbook noting the make, model, manufacturer, and serial number of the equipment. The logbook and manufacturer's operating manual will be present when the equipment is tested. The following information will be recorded:

- Date and time
- The test plot object used (assigned stake number)
- The reading or indication at each test site
- Whether or not the reading or indication was satisfactory
- The name of the individual performing the test.

The IT FTMC Quality Control (QC) Officer will observe the daily testing of all equipment and will record the results of each test in his field logbook.

3.4 Magnetometer/Metal Detector Field Procedures

All intrusive field actives in potential OE areas (e.g., digging, fence post driving, grading, well installation or excavation) will be preceded by a UXO sweep. Each hole made in areas where OE may potentially be found will have a check immediately over the spot of the intrusion. Magnetometer operations at FTMC will assume a detection depth of one foot when surveying an area for excavation.

All magnetometers and metal detectors will be operated in accordance with the manufacturers specifications and procedures.

When surveying a potential area for a sampling well, an area of sufficient size will be surveyed to allow for installation of required pads and bollards. After the well

is installed, the location of bollards will be adjusted as required if an anomaly is detected during the bollard installation process.

The White's Metal Detector will be used to augment the magnetometers on sites where "hot rocks" are suspected. The purpose of using the metal detector in addition to the magnetometers is to eliminate the probability of "hot rocks."

4.0 FTMC ACCESS CLEARANCES, VEGETATION REMOVAL, AND ROAD MAINTENANCE

This section is designed to provide specific procedures regarding activities associated with the building of access corridors, vegetation removal, and road maintenance in support of FTMC operations.

4.1 Access Corridors

The purpose of access corridors is to enable IT personnel access to well and/or other types of sampling sites within FTMC. Access corridors will be created by marking the route, both length and width, in which a UXO survey has been performed. The marking method will be defined in each site-specific UXO safety plan. No unescorted access is permitted until a corridor has been established. If an anomaly is detected during the survey or during a subsequent excavation, it must be avoided, since investigation is not authorized. The route will be altered to avoid the anomaly for FTMC activities. A magnetometer is considered to reliably detect anomalies to a depth of one foot.

The size of each area to be surveyed is dependent on the type and quantity of equipment expected to be used on that site. The UXO survey crew will follow the procedures outlined in the site-specific UXO safety plan to determine the dimensions of the area to be surveyed. Normally, the width of the access route will be at least twice as wide as the widest vehicle that will use the route; footpaths will be a minimum of 3 feet wide.

Tracked or other vehicles, that disturb the soil are authorized for use only in areas that have been surveyed and no anomalies have been detected.

Erosion and weathering will typically cause some UXO items to leach to the surface or otherwise be uncovered. In cases where access corridors or sampling sites have not been surveyed or traversed for a period of time, additional UXO surveys may be required. The decision regarding the performance of additional

surveys will be made by the FTMC UXO team leader and the IT FTMC UXO Safety Officer. The site superintendent will be notified of this decision. This decision will be based on, but not limited to, such factors as: the amount of time since the last survey was performed; the weather during this period; the terrain in the area of concern; and the type and quantity of UXO found during initial surveys.

4.2 Vegetation Removal

In cases where removal of large trees or other types of vegetation is required, the following procedures will be followed:

- The UXO technician will survey around the base of the tree or vegetation, and, if no anomaly is detected, direct the bulldozer or other equipment to proceed. If an anomaly is detected, the location will be recorded and marked and another route will be selected. The size of the area to be surveyed will depend on the size of the suspected root system of the tree to be removed.

- Once the tree has been pushed over, the UXO technician will survey around the root ball and the area in and around the hole. If an anomaly is detected, the anomaly will be recorded and marked and an alternate route will be selected. If no anomaly is detected, the UXO technician will direct the equipment operator to proceed with the excavation.

4.3 Road Maintenance

Remote range roads and trails frequently require a certain amount of repair to remain passable. This section describes authorized actions regarding the maintenance of dirt or gravel range roads by IT UXO personnel.

- Bulldozers or grader-type equipment is authorized to repair roads and trails as long as a UXO survey has been performed and no anomalies have been detected.

- The UXO technician will observe the blade of the equipment as the earth is moved. If a potential UXO is uncovered, the UXO technician will signal the equipment operator to immediately stop the equipment. The UXO technician will then attempt to visually identify the object. If the object cannot be positively identified as a non-hazardous item, the

equipment will be moved, the location of the object marked and recorded on the IT FTMC Unexploded Ordnance Report Form (Attachment 3), and the route changed to avoid the object. If no suspicious objects are detected, the equipment will continue to move earth at a rate of no more than one foot of depth at a time. If, more grading is required after the first past is complete the UXO technician will perform another survey. If no anomalies are detected, the equipment can repeat the grading process. If an anomaly is detected, the operation will be halted and the route changed.

- After an area has been surveyed and no anomalies have been detected, soil can be removed at a rate of no more than one foot per lift. If additional grading is required, a survey will be performed after each one-foot increment the soil has been removed.

- Earth may not, at any time, be moved at a rate of more than one foot in each lift.

5.0 FTMC UXO LOG BOOKS

All UXO team leaders or UXO technicians supporting HTRW operations will maintain a logbook. The purpose of the logbook is to record UXO actions and activities taken at each work site.

5.1 Responsibilities

UXO personnel will maintain an individual daily logbook of work activities.

The logbooks will be routinely inspected weekly by the UXO QC Officer and will be made available to the FTMC site superintendent upon request. Copies will be made daily and filed in the IT Field Project office.

Logbooks will contain bound and numbered pages. Entries will be on successive pages as work is performed. The individual using the logbook will sign the page after the last entry for that page has been made. Logbooks are part of the project legal file and will be filed with the project files upon completion of each investigation.

5.2 Data Requirements

As a minimum, individual logbooks will contain the following information:

- Date, time and location of UXO activities
- Personnel involved in the activities
- UXO activities performed, including UXO/anomalies found
- A description of areas swept
- A record of the magnetometer or other equipment used, including instrument serial number
- Weather conditions.

The IT FTMC QC Officer will utilize the IT FTMC "UXO Avoidance Quality Control Report" (Attachment 4) to document checks of field activities.

Additionally, UXO personnel will complete IT FTMC Form "UXO Sketch Log" (Attachment 5) and IT FTMC Unexploded Ordnance Report Form. The "UXO Sketch Log" will contain a description of activities, including the dimensions of the area surveyed. A description of the length and width will be recorded, as well as the manner in which the survey was performed. These forms will be completed as required and presented to the site superintendent.

ATTACHMENT 1

FTMC Employee Certification
(Example)

I certify that (name of individual) has fulfilled all UXO orientation requirements and has been observed by me for a period of 3 work days and is therefore eligible to perform UXO activities at FTMC.

_____

Brian Sunderman
FTMC UXO Safety Officer

ATTACHMENT 2

Magnetometer/Metal Detector Functions Test Data Sheet

Each magnetometer and/or metal detector will receive a function test at the beginning of each workday and after changing batteries. The function test will include operating the magnetometer/metal detector over a test area developed specifically for ensuring that detection instruments are operating properly. Instruments that do not pass the function test will be tagged out until repairs are made or a replacement instrument is available.

Project Number: _____

Instrument Model: _____

Instrument Serial Number: _____

Date	Person Performing Test	Function Test Results	Remarks

ATTACHMENT 3

Unexploded Ordnance Report Form

Report Tracking Number:	

Discovery and Reporting Time

Time of Discovery	
Date	Time

Time Reported to Base Transition Force	
Date	Time

Employee Name:_____

Reported to FTMC Transitional Force Personnel

Name:_____

Location of Ordnance

Location, Description, and Parcel Number:

Coordinates of Ordnance:	State Plane Coordinates	
	Northing	Easting

Picture Taken of Ordnance			
Yes	No	Date	Time

Written Description and/or Sketch of Ordnance:

Corrective Action Taken by Fort McClellan Transition Force

Date	

ATTACHMENT 4

UXO Quality Control Report

Project Location: _____ **Date:** _____

Work Site Location: _____ **Day:** _____

1. **Personnel Involved:**

2. **Description of Work Being Performed:**

3. **Equipment Utilized:**

4. **Comments:**

_____ _____
Completed By **Printed Name & Title**

_____ _____
Signature **Date**

ATTACHMENT 5

UXO Sketch Location Log

District:_____ **Hole Number:**_____ **Date:**_____

Company Name: IT Corporation **Subcontractor:**_____

Parcel Location:_____ Well Location:_____ Date Started:_____ Date Completed:_____

Type of UXO Work Being Performed:

Most Probable Munition:	
Down-Hole Depth Achieved for UXO Avoidance:	
Total Number of Surface UXO Marked:	
Total Number of Anomalies Marked:	

Location Sketch/Comments:	**Not to Scale**
Signature of UXO Technician:	Date:

CWM Risk Assessment Report
Former Toxic Gas Area – Pelham Range, Parcel 211(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 IT Corporation (IT) to perform a site investigation (SI) at the Former Toxic Gas Area – Pelham Range, Parcel 211(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 the proposed SI field activities at Parcel 211(7).

2.0 SITE BACKGROUND

The Former Toxic Gas Area, Parcel 211(7), is located in the northwest area of Pelham Range. The oval-shaped area consists of approximately 300 acres of hilly, vegetated terrain that encompasses all of Training Area 10B and extends into parts of Training Areas 9A, 9B, and 10A. The Toxic Gas Area was delineated on a 1958 maneuver area map of Pelham Range and was used until the early 1960s (U.S. Army Center for Health Promotion and Preventive Medicine [CHPPM], 1999). Training Area 10B is shown as a chemical area on Plate 2 of the *Archives Search Report, Ordnance and Explosives Chemical Warfare Materials, Pelham Range, Anniston Alabama* (USACE, 2001). Currently, the site is posted with signs reading "Danger Toxic Gas Area, Keep Out"; however, unauthorized access to the area is possible. Chemical agents and decontamination agents reportedly used at the Former Toxic Gas Area included:

- Chloroacetophenone (CN)
- Ortho-chlorobenzylidene-malononitrile (CS)
- Chlorine gas (CL)
- Chloropicrin (PS)
- Decontamination agent (noncorrosive) (DANC)
- Decontamination solution number 2 (DS2)
- Adamsite (DM)
- Phosgene (CG)
- Distilled mustard (HD)
- Supertropical bleach (STB).

The Environmental Baseline Survey (EBS) extended the boundaries of Parcel 211(7) to the west and southwest of Training Area 10B to include areas of suspected chemical agent storage and disposal in Training Areas 9A and 10A (ESE, 1998). Storage and disposal sites were reportedly located in fenced areas a short distance from the road leading to Gate 10 (west of the Former Toxic Gas Area) and on the east side of the road leading to Range I. Little is known about the locations of the disposal areas; however, it is believed that chemical agents were stored and/or disposed in these areas because of restrictions on transporting chemical agents (ESE, 1998).

According to the *Archives Search Report,* the Chemical Corps School constructed a chemical, biological, and radiological (CBR) training course in the Former Toxic Gas Area in the 1950s (USACE, 2001). Soldiers trained at a designated field course consisting of the following seven stations:

- Station No. 1 included simulated machine-gun fire, blocks of nitrostarch, blasting caps, shell simulators, and CN-DM grenades.
- Station No. 2 included CN-DM grenades and simulator shell bursts.
- Station No. 3 included electric blasting caps, dud chemical shells, shell simulators, simulated machine-gun fire, and tubes of PS and CG.
- Station No. 4 included blasting caps, M117 booby-trap simulators, shell simulators, and PS.
- Station No. 5 included radioactive sources placed in a man-made crater (Lima Pond) to simulate the residue from an atomic bomb. [Note: Station No. 5 is currently being investigated in the RI at Range L, Lima Pond, Parcel 204(7)].
- Station No. 6 included electric blasting caps, detonating cord, MR, HD, and simulated armor-piercing mines. [Note: Station No. 6 is currently being investigated in the SI at Station No. 6, Subsection of Former Toxic Gas Area, Parcel 211(7)].
- Station No. 7 included white phosphorous, M-15 smoke grenades, HC smoke grenades, blocks of nitrostarch, M2 flame throwers, electric blasting caps, M5 smoke pots, shell simulators, and pentaerythritol tetranitrate (PETN) detonating cord.

The obstacle course concluded with a personnel decontamination station for washing hands and faces (CHPPM, 1999). The chemical obstacle course was used from approximately 1955 to 1963 (CHPPM, 1999).

A personnel decontamination station was established at the south side of the Toxic Gas Area (north of the burial mound at Rideout Field) and was used in conjunction with the Former Decontamination Training Area (Parcel 207[7]) (ESE, 1998). A detection and identification/decontamination training station was also located within the southern portion of the Former Toxic Gas Area (ESE, 1998). At this station, training exercises consisted of contaminating two World War II-era tanks with mustard and allowing trainees to perform detection tests. A second group of trainees would decontaminate the tanks using DANC (ESE, 1998). The EBS indicates that mustard was the only chemical warfare agent used at this station.

IT conducted site walks of Parcel 211(7) at Training Areas 9A, 9B, 10A, and 10B in July/August 2001 and January 2002. In Training Areas 9A and 9B, both sides of the road leading to Gate 10 were walked; however, no storage and/or disposal sites were located. Training Area 10B was walked from Range I to the intersection of the road south of Training Area 10B. North of Range I, three metal fence posts were observed in an east-west trending direction. A ground scar devoid of vegetation approximately 25 feet by 25 feet was noted between two of the posts.

Training Area 10B was walked for evidence of chemical warfare material (CWM). Along the eastern side of the site, three 55-gallon drums were found in various conditions, one labeled as a fog oil storage drum (empty), one sitting upright with a negligible amount of moisture, and the third turned on its site and approximately half full of liquid. East of Station No. 6, four 5-foot by 3-foot spray tanks, labeled "Chemical Warfare Service USA, No. M33A1," were observed. Two of the spray tanks were torn apart, two were intact. Two World War II-era tanks were noted in the south-central portion of Training Area 10B, east of the unimproved road to Lima Pond. Two more World War II era tanks were noted on a hillside, east of the previously mentioned tanks. Both sets were intact, one with a sign reading "Contaminated, Keep Off." One empty supertropical bleach (STB) drum was observed in the southeastern portion of the site near a decontamination station described in the EBS. Two bunkers separated by a large trench were observed on a hillside near the location of former Station No. 7. A fragment of an M2 flame-thrower was also noted at this location and several circular depressions were observed west of the bunkers. Several metal canisters were found to the west of Station No. 6, in and around depressions that appear to be former bunkers or foxholes. Small arms blank casings, foxholes, depressions, and discarded training materials were found throughout the Toxic Gas Area.

3.0 PREVIOUS INVESTIGATIONS

A survey conducted by the U.S. Army Chemical School in 1967 declared the chemical obstacle course area free of contamination (CHPPM, 1999). All empty rounds, containers, and miscellaneous items were policed and disposed in accordance with standard operating procedures (not specified). The area was bulldozed and decontaminated. Based on existing information, the report concluded there appeared to be no significant risk for surface activity; however, the exact location of the chemical obstacle course was unknown (CHPPM, 1999).

The Toxic Gas Area encompasses Range K, Parcel 207(7), Range L (Lima Pond), Parcel 204(7), and a chemical obstacle course that included Station No. 6. These sites are currently being investigated in separate site investigations, and will not be investigated during the SI at the Toxic Gas Area, Parcel 211(7).

4.0 SI FIELD ACTIVITIES

The proposed SI field activities at the Former Toxic Gas Area, Parcel 211(7), include a geophysical survey to identify buried objects (e.g., waste disposal areas, glass, metal), and the collection of soil, groundwater, and drum 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. 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. Low-sensitivity magnetometers will be used to locate surface and shallow-buried metal objects.

Based on previous work conducted at the site, CWM screening with a miniature continuous air monitor system (MINICAMS) is not required at the Former Toxic Gas Area, Parcel 211(7).

5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on previous investigations conducted at the Former Toxic Gas Area, Parcel 211(7), and the UXO avoidance and geophysical survey activities that will be conducted during SI field activities, the probability of encountering CWM during field activities is deemed remote. According to 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), 2002, ***Final Site-Specific Field Sampling Plan Attachment, Former Toxic Gas Area – Pelham Range, Parcel 211(7), Fort McClellan, Calhoun County, Alabama,*** August.

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 Corps of Engineers (USACE), 2001, ***Archives Search Report, Ordnance and Explosives Chemical Warfare Materials, Pelham Range, Anniston Alabama,*** September.

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 the Former Toxic Gas Area, Parcel 211(7).

Ronald M. Levy
BRAC Environmental Coordinator
Fort McClellan, Alabama

13 August 2002
Date