Closed, Transferring, and Transferred Range and Site Inventory Report

Closed, Transferring, and Transferred Range and Site Inventory Report

FORT DEVENS BRAC PROPERTY, MASSACHUSETTS

Forces Command

28 June 2003

URS

Final CTT Inventory Report

URS

28 June 2003

Mr. Samuel Bryant
U.S. Army Environmental Center
5179 Hoadley Road
Aberdeen Proving Ground, MD 21010-5401

Subject: Transmittal of Final BRAC CTT Range Inventory Report for Fort Devens BRAC Property

Dear Mr. Bryant:

URS Group, Inc. is pleased to submit two copies of the subject Final BRAC CTT Range report. Each document consists of text, a CTT Range and UXO-DMM-MC Sites Map, a printout of ARID data, and RAC score sheets. CDs containing the GIS data submittal are also included.

A test of the ARID data is being submitted through electronic mail. Following a successful ARID upload, CDs containing the final and approved ARID data will be submitted to all report recipients.

If you have questions or comments, please call me at (865) 220-8134.

Sincerely,

Thomas D. Sherrod
Project Manager

c/enc: Atlanta Region BRAC Field Office (Mr. Bonilla) (1 cy)
BRACO (Ricky Stauber) (1 cy)
Installation (Mr. Goff) (1 cy)
K. Sexton (1 cy)
R. Marshall (electronic)

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DOCUMENT REVIEW RECORD

DOCUMENT PREPARER: URS Group, Inc.
DOCUMENT TITLE: Draft CTT Report Fort Devens BRAC Property, Massachusetts
DOCUMENT NUMBER: 0111071
DATE TRANSMITTED: 28 April 2003

Section, Paragraph, Page	REVIEWER COMMENT	PREPARER RESPONSE
AEC		
1. Page C-5, second paragraph, third sentence	Please delete "340" and replace with "1,340". This change will correctly reconcile the Devens RFTA acreage.	Accepted.
2. Page D-9, Table D-4, RC Reason, Range Complex 1, 2, and 3	According to DSERTS, the correct RC Reason is "B" = Study Completed, No Cleanup Required. Please change in Table D-4 and apply change to ARID Data Files, DSERTS Table.	Accepted.
3. Map, Figure E-1	Little Mirror Lake site is incorrectly depicted on the map. The site boundary should be a thick dark black line and not red as shown on the map. Please change color of site boundary to black.	Accepted.
4. Map Figure E-1	Please ensure that all range/site areas of the map are labeled. There are several non-contiguous property areas that do not have a label. For example, in the central, west part of the installation map directly north of Range Complex 2 there is a transferred area with a blue color boundary outline that is not labeled. From the map legend, it is evident that this area should be a part of Range Complex 4, however, it is not labeled.	Accepted.
5. ARID Tables, RMIS Information Table	The RMIS Information table should ONLY be completed for sites that are MMRP eligible (i.e., only for the Range Complex 4 site).	Accepted.
Benjamin F. Goff, BRAC Environmental Coordinator, 4 June 2003		
1. Report Cover Page	The location of Fort Devens in the state of Massachusetts is inaccurately depicted on the cover page. The star symbol should be placed further to the north, approximately halfway between where it is now and northern border.	Accepted.
2. Page ES-3, Summary of Results, last paragraph	The Bureau of Prisons property (Site 25) was also cleared of UXO by HFA in 1995. Removal actions involved both surface (210 acres) and surface/subsurface (70 acres). Refer to the Ordnance and Explosives Removal Report for the Bureau of Prisons Parcel (HFA 1995), and make the appropriate changes to text, acreage, and figures.	Accepted.

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3. Page C-2, Installation Summary, second paragraph, first sentence	The reported acreage of Fort Devens prior to BRAC closure is inaccurate. Please change the number to 9,300 acres.	Accepted.
4. Page C-5, Installation Summary, second paragraph, second sentence	The Devens RFTA contains approximately 5,182 acres. The South Post contains 4,837 acres, with the remaining 345 acres located on Main and North Post. Please revise accordingly.	Accepted.
5. Page C-9, Installation Summary	In addition to the removal activities described on Page C-9, HFA also performed surface/subsurface clearance on the Bureau of Prisons parcel, designated in the ASR as Site 25. Please refer to Comment 2.	Accepted.
6. Page C-9, Installation Summary, last paragraph (continues Page C-10)	BRAC records indicate that DSERTS site FTDV-060 designates the active training ranges located on South Post. This appears to be reflected in the DSERTS database. However, this does not agree with the information provided to URS by AEC. A determination needs to be made as to which information is correct, either DSERTS or AEC.	FTDV-060 is the reported DSERTS site.
7. Page D-1, Table D-1: Ownership Summary Table	a. Little Mirror Lake is not located on the Bureau of Prisons property. Ownership is State Agency (MassDev) only. b. Range Complex 1 ownership also includes State Agency (MassDev). MassDev is responsible for the Wastewater Treatment Plant. c. Range Complex 4 is likely owned by the private sector and local government.	Accepted. Accepted. Range Complex 4 has been deleted from the report.
8. Page D-2, Installation CTT Range and Site Data	Please provide a description of the rules and/or criteria whereby the ranges were grouped into the four complexes. The distinctions are not immediately clear, and should be stated explicitly. For example, Range Complex 1 appears to consist of all ranges/sites located within the Fort Devens boundary, on which subsurface clearance actions were performed. However, this should be made clear.	Accepted.

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9. Page D-2, Installation CTT Range and Site Data, last paragraph	Subsurface clearance also occurred at Site 25, Federal Bureau of Prisons parcel. Removal actions were performed by HFA. Refer to the Ordnance and Explosives Removal Report for the Bureau of Prisons Parcel (HFA 1995). Please make the necessary changes to text, tables, figures.	Accepted.
10. Page D-6, Installation CTT Range and Site Data, first paragraph	a. According to the text, Range Complex 4 includes property that falls within hypothetical range fans (SDZ), without consideration for any factors or features that would otherwise reduce the extent of the zone. Please state in the text if this is consistent with CTT inventory procedure. This will reduce some of the confusion associated with the designation of these properties as Range Complex 4.	Accepted.
	b. The text states, "Other than the designated FUDS properties, no other off-installation properties were recommended for investigation or further action." This sentence seems to imply that the (non-FUDS) off-installation properties have undergone some type of evaluation or assessment, and have been determined to be clear of UXO. BRAC is not aware of any such documentation. Please provide further information.	Accepted. Language changed to indicate that there is no knowledge of such an evaluation.
	c. BRAC is concerned with land within the existing boundaries when the installation was designated for closure and re-alignment. If the property transfer occurred prior to BRAC, it should not be included in the BRAC inventory.	Accepted. As determined by AEC.
11. Page D-8, Table D-3	Refer to Comment 7.	Accepted.
12. Page D-9, Table D-5	Range Complex 4 should not be included in the Devens BRAC inventory. It fits the definition of FUDS property.	Accepted. As determined by AEC.

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13. Figure E-1, Map	a. It is difficult to distinguish among the four Range Complexes. Due to the fact that some Range Complex boundaries overlap (i.e. are shared by adjacent sites belonging to different Range Complexes), individual site boundaries can appear to have two symbols (e.g. solid yellow line on top of dotted black line). It may be useful to add separate maps for each Range Complex, to supplement the map depicting all of the Range Complexes combined.	Accepted.
	b. For consistency, the text label for the Devens RFTA 3400 Area in the extreme western portion of Main Post should include the word "Area".	Accepted.
	c. The map indicates that 9176.2 range acres have been transferred (i.e. transferred or leased). Please make clear in the text that the use of the term "Transferred" in the report includes off-installation property within the hypothetical SDZs. With the exception of FUDS land, this property was not part of Fort Devens and, therefore, was not actually transferred.	Properties no longer included in this report.
	d. The text box at the lower right corner of the map lists the Title, Source, Edition, and Date of the map. Under "Edition", please change the state abbreviation from "CA" to "MA".	Accepted.
	e. Site 1 – In addition to the area on North Post enclosed by a yellow boundary, the removal actions at Site 1 also included the portion of land directly to the north of the Wastewater Treatment Plant (WWTP). Only the WWTP was excluded from the clearance activities at Site 1. Refer to the Removal Action Report, Volume I, Appendix D (HFA 1996/8) for a map of the Site 1 removal area. Please revise the Site 1 boundary accordingly.	Accepted.

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	f. Site 12 – The area of the removal action includes the extreme southwest portion of Site 12, as well as land adjacent to (i.e. outside of) the southwest boundary of Site 12. This may have an effect on the designation of the land adjacent to the site as Range Complex 3, given that removal activities took place there. Refer to the Removal Action Report, Volume I, Appendix E (HFA 1996/8) for a map of the Site 12 removal area.	Accepted.
	g. Site 25 – Refer to Comment 9 regarding removal action at Site 25, and make changes accordingly.	Accepted.
14. Range Table – 9 of 10	Range Complex 4 does not include property transferred as a result of BRAC 91.	Accepted. As determined by AEC.
REVIEWED BY: as indicated **DATE**:		**RESPONSE BY**: URS Group, Inc. **DATE**: 5 June 2003

FINAL
U.S. ARMY CLOSED, TRANSFERRING, and TRANSFERRED RANGE and SITE INVENTORY for FORT DEVENS BRAC PROPERTY, MASSACHUSETTS

28 June 2003

Prepared for:
U.S. Army Environmental Center and
Fort Devens, Massachusetts

Prepared by:

URS Group, Inc.
1093 Commerce Park Drive
Suite 100
Oak Ridge, Tennessee 37830-8029

ABBREVIATIONS/ACRONYMS

AEC	U.S. Army Environmental Center
A/I	Active and Inactive
AOC	Area of Concern
AREE	Area Requiring Environmental Evaluation
ARID	Army Range Inventory Database
ARS	Advance Range Survey
ASR	Archives Search Report
BRAC	Base Realignment and Closure
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CTC	Cost to Complete
CTT	Closed, Transferring, and Transferred
DERA	Defense Environmental Restoration Account
DERP	Defense Environmental Restoration Program
DMM	Discarded Military Munitions
DoD	Department of Defense
DOE	Department of Energy
DSERTS	Defense Site Environmental Restoration Tracking System
EOD	Explosive Ordnance Disposal
FFID	Federal Facility Identification
FUDS	Formerly Used Defense Sites
GIS	Geographic Information System
HE	High Explosive
HFA	Human Factors Applications, Inc.
IRP	Installation Restoration Program
LPA	Limited Public Access
MassDev	Mass Development
MC	Munitions Constituents
MDFA	Massachusetts Development and Finance Agency, Devens Commerce Center
MRP	Military Munitions Response Program
NPA	No Public Access
NPL	National Priorities List
OE	Ordnance and Explosives
RAC	Risk Assessment Code
RC	Response Complete
RFTA	Reserve Forces Training Area
ROTC	Reserve Officer's Training Corps
RPA	Restricted Public Access
RMIS	Restoration Management Information System
SDZ	Surface Danger Zone
UPA	Unlimited Public Access
URS	URS Group, Inc.
USACE	U.S. Army Corps of Engineers
USARC	U.S. Army Reserve Command
USFWS	U.S. Fish and Wildlife Service
UXO	Unexploded Ordnance

EXECUTIVE SUMMARY

Purpose of the Closed, Transferring, and Transferred Inventory

The Army is conducting its closed, transferring, and transferred (CTT) inventory in three phases to meet immediate, short-term, and long-term needs. Phase 1 involved a data call issued to each U.S. Army Major Command requesting general information about ranges on their installations. This phase, referred to as the Advance Range Survey (ARS), allowed the Army to meet its immediate needs; however, a more detailed inventory was necessary. The Army divided the detailed follow-on inventory into two parts, an active and inactive (A/I) inventory (Phase 2) and a CTT inventory (Phase 3).

A Phase 2 inventory was performed for the Devens Reserve Forces Training Area (RFTA), which is the portion of the former Fort Devens that was realigned within the Army as a result of Base Realignment and Closure (BRAC). No Phase 2 was performed for the remaining properties because no A/I military ranges exist. The installation has been included under 1991 BRAC, and all CTT ranges associated with the BRAC property are in transferred status.

This CTT inventory began as an inventory of U.S. Army CTT ranges. However, as a result of the congressional requirements outlined in the Defense Authorization Act of 2002 (Public Law 107-107) and resultant changes to the Defense Environmental Restoration Program (DERP), the CTT inventory is a comprehensive inventory of both CTT ranges and other CTT sites with unexploded ordnance, discarded military munitions, and/or munitions constituents (UXO-DMM-MC). All locations previously or currently owned, leased, or possessed by the Department of Defense (DoD), except those currently classified as A/I ranges or permitted military munitions treatment and/or disposal facilities, are included in this inventory. The U.S. Army Environmental Center (AEC) is the Program Manager for the Army's CTT inventory at BRAC sites. This inventory specifically focuses on non-A/I areas within the BRAC parcel, and areas associated with the installation that may have been used in the past for ordnance-related testing or training, except where such properties are defined as Formerly Used Defense Sites (FUDS). FUDS properties are being inventoried under a separate effort.

Specific requirements of the CTT inventory for Fort Devens included (1) mapping the CTT military ranges and UXO-DMM-MC sites; (2) collecting and preparing data to be uploaded into the Army Range Inventory Database (ARID); (3) conducting an assessment of explosives safety risk using the Risk Assessment Code (RAC) methodology for each CTT military range or site containing UXO or DMM identified in the inventory; and (4) determining which sites on the inventory qualify for the Munitions Response Program (MRP).

The data collection portion of the CTT inventory was conducted in November 2001 and involved a site visit to the installation. While on-site, the CTT inventory team reviewed historical records and interviewed installation personnel concerning potential CTT military ranges and UXO-DMM-MC sites. Additional post site visit data collection has been required due to scope changes within the project. This report summarizes the CTT inventory conducted at Fort Devens and presents the inventory findings.

Purpose of the Range Inventory Report

The purpose of this report is to present the results of the CTT inventory for Fort Devens BRAC property located in Middlesex and Worcester County, Massachusetts. The report includes an individual CTT map for the installation, a copy of the data tables that will be submitted electronically to AEC for uploading into ARID, completed RAC worksheets for all sites that may potentially contain UXO or DMM, DERP eligibility determination, and identification of which ranges and sites qualify for the MRP. Although an exhaustive archive search was not performed for this inventory, historical research was performed to identify sites subject to this inventory, including locations, periods of use, the types of ordnance used, and other specific information regarding the site. The majority of these data were obtained by reviewing installation records and interviewing personnel at, or involved with, Fort Devens. Although the data presented in this report are believed to be accurate, they have not been verified by inspection or field sampling. Therefore, it is possible that additional ranges or sites may be discovered in the future.

Summary of Results

Fort Devens [Federal Facility Identification (FFID): MA210420270] is located in Middlesex and Worcester Counties of Massachusetts. It was created in 1917 when over 11,000 acres were leased to form Camp Devens in response to America's entry into World War I. Camp Devens served as New England's reception center for draftees during World War I, but was placed in caretaker status in September 1921. During the caretaker period, Fort Devens was used for training of Reserve Officer's Training Corps (ROTC), Citizen's Military Training Corps, the National Guard, and U.S. Army Reserve units. After World War II started in Europe, Fort Devens received rehabilitation in preparation for America's entry into the conflict. The installation once again served as New England's major reception center. Major tenants during the period included the 1st, 32nd, and 45th Divisions; a Women's Army Corps unit; the 4th Engineer Amphibian Brigade; and the 366th Infantry Regiment. German prisoners of war were interned at Fort Devens from 1944 to 1946, and several experimental aspects of modern warfare were used at the installation, including amphibious assaults, tank-destroyer units, and combined armor-infantry operations. Fort Devens returned to caretaker status from June 1946 until the summer of 1948. The installation remained active through the Korean Conflict training regular Army, National Guard, and ROTC units. The 2nd Infantry Brigade, a Strategic Army Corps unit, trained at Devens in the 1950s and 1960s. The 196th Light Infantry Brigade

trained at the installation before deploying for the Vietnam Conflict. Fort Devens also sent units to the Middle East in 1990–1991 for Operations Desert Shield/Storm and Provide Comfort. Fort Devens was selected for closure under BRAC 1991. It is a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) National Priorities List (NPL) site.

The Archives Search Report (ASR) identifies the former Fort Devens as being comprised of three distinct areas totaling 9,300 acres: the North Post, Main Post, and South Post. The ASR additionally identifies considerable properties outside of the BRAC boundary that were transferred between 1917 and 1994 (outside of BRAC). No information regarding this property or its historic use was available. Only a small portion of the property was identified by the U.S. Army Corps of Engineers (USACE) as FUDS. All current active military training ranges are located within the bounds of the South Post. In accordance with BRAC, most of the properties that formerly comprised the North and Main Post were transferred either to federal entities such as the U.S. Fish and Wildlife Service (USFWS), Department of Labor, or Department of Justice, or to the Massachusetts Government Land Bank/Massachusetts Development and Finance Agency, Devens Commerce Center (MDFA). MDFA is now referred to as Mass Development (MassDev).

The remaining properties (5,182 acres) were realigned within the Army and now comprise the Devens RFTA. The retained properties include the following parcels: Main Cantonment, Motor Pool Annex, 1400 Area, 3400 Area, and the 3700 Area on Main Post; the 3800 Area on North Post; and all of the South Post. A portion of these properties will transfer or be leased at some point in the future, following completion of the ongoing environmental remediation efforts. However, since these properties currently comprise the Devens RFTA, they are not included within the scope of this CTT inventory. A number of ranges identified in this CTT inventory overlie the retained parcels on the North and Main Posts. However, since these properties are outside the scope of this CTT inventory, the acreage associated with the ranges that overlie the retained property will be reported separately.

Similarly, some of the properties that lie adjacent to the former Fort Devens have been identified as FUDS and some of the CTT ranges identified in this BRAC CTT inventory overlie FUDS property. The range acreage associated with a BRAC range overlapping FUDS property was not counted in this inventory, but will be reported separately as part of the FUDS CTT inventory analysis. FUDS boundaries were obtained from Ms. Julie Kaiser and Ms. Rochele Hace of USACE.

In 1995, Human Factors Applications, Inc. (HFA) performed a UXO statistical sampling at 30 separate sites over 2,300 acres (approximately half of the total BRAC property) throughout the North and Main Posts. All UXO found were properly disposed of during the sampling activities. Upon completion of the sampling action, four sites were recommended for further UXO response action. These four sites, comprising approximately 685 acres, were cleared of UXO by HFA in 1996.

Documentation related to Findings of Suitability to Transfer was available for review for some but not all the transferred property. The CTT inventory team reviewed documents related to the transfer of 1,080 acres, including the USFWS, Federal Bureau of Prisons, and Verbeck Housing Area. In areas where surface clearances were performed to a depth of 4 ft, digging activities are restricted at depths greater than 4 ft and under roadways and structures. Digging restrictions and easements to allow DoD access to conduct further response, if necessary, have been applied to the remainder of the BRAC properties as well.

During the CTT inventory, 27 individual CTT ranges and 1 UXO-DMM-MC site were identified on Fort Devens BRAC property. The 27 ranges were grouped into four range complexes based on the extent of UXO investigation and/or removal conducted on the properties. Range Complex 1 comprises four land parcels that were sampled and then cleared from surface to a depth of 4 ft, depending on the extent of UXO contamination. Range Complex 2 comprises 26 land parcels that were sampled and surface cleared. Range Complex 3 comprises all remaining BRAC property. This property was included in an archival review and photographic analysis, but no additional UXO investigation was deemed necessary. Range Complex 4 comprises the extent of the Surface Danger Zones of former ranges that emanate from within BRAC properties but extend beyond the BRAC boundary. The non-BRAC properties identified as Range Complex 4 have not yet been studied or investigated for munitions. Since Range Complex 4 consists of non-BRAC properties, the acreage associated with the Complex is excluded from this BRAC CTT inventory and included in the CTT inventory for Devens RFTA.

- **Active/Inactive**: 4,587.6 (associated with the realigned properties of Devens RFTA)
- **Closed**: 0 acres
- **Transferring**: 0 acres
- **Transferred**: 3,914.2 acres

As part of the CTT inventory, the CTT inventory team performed an assessment of explosives safety risk using the RAC process for each CTT military range and UXO-DMM site in the CTT inventory. RAC scores are not appropriate for sites containing only MC. The RAC process essentially involves completion of a worksheet that consists of a series of questions regarding historical use of the range. As the worksheet is completed, it defines a relative overall score (RAC score) for each military range. The RAC score is an estimate of the relative explosive safety risk before cleanup activities, which is reported as a number from 1 [high explosives (HE) safety risk] to 5 (negligible explosives safety risk). Response actions at a site may serve to reduce the explosive safety risk, but will not change the RAC score. The following is a description of the RAC scores.

RAC 1	High Risk - Highest priority for further action.
RAC 2	Serious Risk - Priority for further action.
RAC 3	Moderate Risk - Recommend further action.

RAC 4 Low Risk - Recommend further action.
RAC 5 Negligible Risk - Indicates that no DoD action is necessary.

The results of the CTT inventory for Fort Devens are summarized in Table ES-1.

Table ES-1: CTT Range and Site Details

Installation	Range or Site Name	Classification	Total Area (Acres)	Munitions Type(s)	Munitions Constituents	RAC Score	DERP Eligibility
Fort Devens	Little Mirror Lake	Transferred	6.9	Hand Grenades, Live	Unknown	2	Other
Fort Devens	Range Complex 1	Transferred	748.4	Flares, Signals, Simulators, or Screening Smoke (Other Than White Phosphorous); Ground Rockets, Rifle Grenades (Smoke, WP, Incendiary); Hand Grenades (Smoke, WP, Incendiary); Landmine, Practice (With Spotting Charges); Large Caliber (37mm and Larger), HE; Mortars, HE; Pyrotechnics; Small Arms	Unknown	2	Other
Fort Devens	Range Complex 2	Transferred	1,315.3	Blasting Caps, Fuzes, Boosters, or Bursters; Flares, Signals, Simulators, or Screening Smoke (Other Than White Phosphorous); Ground Rockets, Rifle Grenades (Smoke, WP, Incendiary); Ground Rockets, Rifle Grenades, Live; Ground Rockets, Rifle Grenades, Practice; Hand Grenades (Smoke, WP, Incendiary); Hand Grenades, Live; Hand Grenades, Practice; Landmines, Anti-Personnel; Landmine, Practice (With Spotting Charges); Landmines, Anti-Tank; Large Caliber (37mm and Larger), HE; Mortars, HE; Mortars, Practice; Practice Ordnance (w/o Spotting Charges); Pyrotechnics; Small Arms; Toxic Chemical Munitions	Unknown	1	Other
Fort Devens	Range Complex 3	Transferred	1,843.6	Flares, Signals, Simulators, or Screening Smoke (Other Than White Phosphorous); Pyrotechnics; Small Arms	Unknown	4	Other

A. INTRODUCTION

The U.S. Army is in the process of inventorying all of its past and current military ranges to support its range sustainment and munitions response programs. The Army is conducting the inventory in a series of phases, the first and second phases only addressed properties meeting the definition of a military range. The third phase involves an inventory of closed, transferring, and transferred (CTT) military ranges and unexploded ordnance, discarded military munitions, and/or munitions constituents (UXO-DMM-MC) sites. This report documents the results of the CTT inventory for Fort Devens Base Realignment and Closure (BRAC) and non-Formerly Used Defense Site (FUDS) transferred property located in Middlesex and Worcester Counties, Massachusetts.

Background

The Army is conducting the range inventory in a series of three phases to meet immediate, short-term, and long-term planning needs. Phase 1 involved a data call issued through U.S. Army Environmental Center (AEC) requesting general information about ranges on various installations under each U.S. Army Major Command. Phase 1 was conducted using a questionnaire called the Advance Range Survey (ARS). The purpose of the ARS was to allow the Army to meet the short-term data goal of supporting the U.S. Department of Defense (DoD) response to Senate Report 106-50. The Fort Devens ARS data were submitted to AEC and compiled into a master database.

The ARS allowed the Army to meet its short-term needs; however, the Army's long-term needs required a more detailed inventory of its military ranges that was not achievable through the ARS. For management and budgetary reasons, the Army divided the detailed follow-on inventory into two phases: Phase 2 covers active and inactive (A/I) military ranges, while Phase 3 is slightly broader and covers all CTT military ranges and UXO-DMM-MC sites.

A Phase 2 inventory was performed for the Devens Reserve Forces Training Area (RFTA), which is the portion of the former Fort Devens that was realigned within the Army as a result of BRAC. No Phase 2 was performed for the remaining properties because no A/I military ranges exist. The installation has been included under 1991 BRAC, and all CTT ranges associated with the BRAC property are in transferred status.

This CTT inventory is a comprehensive inventory of both CTT military ranges and UXO-DMM-MC sites. All locations currently owned, leased, or otherwise possessed by the Army and all such properties previously owned, leased, or possessed by DoD are included in this inventory. However, properties currently classified as operational (A/I) ranges or permitted military munitions treatment and/or disposal facilities are excluded. Closed ranges and sites are no longer in use and have no potential future use as ranges and sites, but remain under military control. A range or site is referred

to as transferring if it is no longer being used and is proposed to be released from military control within the next year. A range or site is considered transferred at the time it is officially released from military control. Properties that are owned by DoD but leased to other entities are not transferred. Further definitions are provided in Section B.

Initial pre-site visit coordination was accomplished by telephone and e-mail on 19 and 25 September 2001. Follow-up coordination occurred by e-mail on several occasions in October 2001. The site visit to Fort Devens was conducted on 13–15 November 2001. While on-site, the CTT inventory team reviewed historical records and interviewed appropriate installation personnel. Additional post site visit data collection has been required due to scope changes within the project.

Project Drivers

There are several drivers for the CTT inventory, including Defense Environmental Restoration Program (DERP), as amended by the Defense Authorization Act of 2002 (Public Law 107-107), federal financial accounting standards, and DoD guidance. The most important driver is the DERP. DERP requires an "inventory of defense sites that are known or suspected to contain UXO-DMM-MC" be conducted and completed by 31 May 2003. The revised Management Guidance for the DERP (September 2001) created the Military Munitions Response Program (MRP) and outlines the specific program requirements for the CTT inventory. Federal financial accounting standards require DoD to determine the estimated cost of cleaning up sites under the MRP and report this cost in its annual financial statements. A complete inventory of CTT ranges and UXO-DMM-MC sites will ensure that future financial reporting estimates are defensible and supported by accurate data.

Report Objectives

The objective of this report is to present the results of the CTT inventory for Fort Devens BRAC property. Although an exhaustive archive search was not performed for this inventory, historical research was performed to identify sites subject to this inventory, including locations, periods of use, and types of ordnance used. The majority of these data were obtained by reviewing installation records and interviewing personnel at, or involved with, Fort Devens. Although the data presented in this report are believed to be accurate, they have not been verified by inspection or field sampling.

Project Participants

AEC is the Program Manager for the Army's CTT inventory. AEC provides overall management and guidance, identifies significant issues, develops and maintains the Army Range Inventory Database (ARID), defines achievable schedules and milestones, coordinates with relevant U.S. Army organizations, and reports on the

inventory's status. The Project Manager at AEC for BRAC installations is Mr. Richard O'Donnell.

URS Group, Inc. (URS), is the executing organization for the CTT inventory at BRAC installations and properties and is responsible for conducting the record searches; gathering, compiling, and validating data; and submitting the validated data to AEC in the specified file formats. URS is responsible for completing the CTT inventory for Fort Devens BRAC property. The Project Manager from URS is Mr. Tom Sherrod. The data collection team leader for the Fort Devens CTT inventory is Ms. Kyra Sexton.

Fort Devens offices and personnel were contacted and interviewed as part of the CTT inventory for Fort Devens. The Fort Devens primary point of contact for the CTT inventory was Mr. Ben Goff, BRAC Environmental Coordinator, Devens BRAC Environmental Office. Mr. Tom Poole and Mr. Tom Strunk of the Devens RFTA Environmental Division provided additional support. Geographic information system (GIS) data were provided by Mr. Takashi Tada, GIS/Environmental Analyst for the Devens BRAC Environmental Office.

Mr. Rick Hanoski of Human Factors Applications, Inc. (HFA) provided information regarding UXO response actions performed by HFA under contract to the U.S. Army Corps of Engineers (USACE), Huntsville District.

B. DEFINITIONS AND DATA REQUIREMENTS

Before the results of the inventory can be presented, the reader must have an understanding of the definitions and data requirements associated with the inventory. This section outlines the definitions used in the inventory and the data requirements established by the Army.

Inventory Definitions

The following definitions are applicable to the Army's range inventory program.

Active Range – A Military Range that is currently in service and is being used regularly for range activities. For the purposes of the inventory, "in service" is defined as currently in operation, construction, maintenance, renovation, or reconfiguration to meet current Army training and/or test requirements. An active range qualifies as an operational range.

Base Realignment and Closure (BRAC) – A DoD program that focuses on compliance and cleanup efforts at military installations undergoing closure or alignment, as authorized by Congress in four rounds of base closures for 1988, 1991, 1993, and 1995. A BRAC parcel is eligible for the MRP if the release occurred prior to September 30, 2002; the release is not an operational range, FUDS, active munitions demilitarization facility, or active waste military munitions treatment or disposal unit that operated after September 30, 2002; and the site was not identified or included in the Restoration Management Information System (RMIS) prior to September 30, 2002.

Closed Range – A Military Range that has been taken out of service as a range and that either has been put to new uses that are incompatible with range activities or is not considered by the military to be a potential range area. A closed range is still under the control of a DoD component. Closed ranges cannot occupy an area that has been identified as an A/I range. Closed ranges are those areas of land that used to be operational, are still owned by the Army, but are now used for non-range purposes.

Defense Site – Locations that are or were owned by, leased to, or otherwise possessed or used by DoD. Does not include operational ranges, operating storage or manufacturing facilities, or facilities that are or were permitted for the treatment or disposal of military munitions.

Defense Site Environmental Restoration Tracking System (DSERTS) Site – A site included in the Army's DSERTS database. DSERTS is the database the Army uses to track Installation Restoration Program (IRP) sites under DERP.

Discarded Military Munitions (DMM) – Military munitions that have been abandoned without proper disposal or removed from storage in a military magazine

or other storage area for the purpose of disposal. The term does not include UXO, military munitions that are being held for future use or planned disposal, or military munitions that have been properly disposed of.

Formerly Used Defense Site (FUDS) – A DoD program that focuses on compliance and cleanup efforts at sites that were formerly used by DoD. A FUDS property is eligible for the MRP if the release occurred prior to October 17, 1986; the property was transferred from DoD control prior to October 17, 1986; and the property or project meets other FUDS eligibility criteria.

Inactive Range – A Military Range that currently is not being used, but that is still considered by the Army to be a potential range area and that has not been put to a new use that is incompatible with range activities. An inactive range qualifies as an operational range.

Limited Public Access (LPA) – The public does have some access to the range or site, but that access doesn't involve any digging, only surface access, such as livestock grazing or use as a wildlife preserve or refuge.

Military Munitions – All ammunition products and components produced for or used by the armed forces for national defense and security, including ammunition products or components under the control of DoD, the Coast Guard, the Department of Energy (DOE), and the National Guard. The term includes confined gaseous, liquid, and solid propellants, explosives, pyrotechnics, chemical and riot control agents, smokes, and incendiaries, including bulk explosives and chemical warfare agents, chemical munitions, rockets, guided and ballistic missiles, bombs, warheads, mortar rounds, artillery ammunition, small arms ammunition, grenades, mines, torpedoes, depth charges, cluster munitions and dispensers, demolition charges, and devices and components thereof. The term does not include wholly inert items, improvised explosive devices, and nuclear weapons, nuclear devices, and nuclear components, except that the term does include non-nuclear components of nuclear devices that are managed under the nuclear weapons program of the DOE after all required sanitization operations under the Atomic Energy Act of 1954 (42 United States Code 2011 et seq.) have been completed.

Military Range – A designated land or water area set aside, managed, and used to conduct research on, develop, test and evaluate military munitions and explosives, other ordnance, or weapon systems, or to train military personnel in their use and handling. Ranges include firing lines and positions, maneuver areas, firing lanes, test pads, detonation pads, impact areas, and buffer zones with restricted access and exclusionary areas.

Munitions Constituents (MC) – Any materials originating from UXO-DMM-MC, including explosive and nonexplosive materials, and emission, degradation, or breakdown elements of such ordnance or munitions.

No Public Access (NPA) – The public does not have any access to the range or site.

Operational Range – A military range that is currently in service and is being regularly used for range activities, or a military range that is not currently used, but that is till considered by the military to be a potential range area, and that has not been put to a new use that is incompatible with range activities. Both active and inactive ranges qualify as operational ranges.

Restoration Management Information System (RMIS) Site – A site included in the DoD's RMIS database. Includes any building, structure, impoundment, landfill, storage container, or other site or area where a hazardous substance was or has come to be located. Installations and ranges may have more than one site.

Restricted Public Access (RPA) – The public does have some access to the range or site and that access may involve some surface disturbance, such as agricultural use, forestry, recreation, and vehicle or supply storage facility use.

Transferred Range – A Military Range that is no longer under military control and had been leased by DoD, transferred, or returned by DoD to another entity, including federal entities. This includes a Military Range that is no longer under military control, but that was once used by the Army. This includes use under the terms of an executive order, special-use permit or authorization, right-of-way, public land order, or other instrument issued by the Federal land manager.

Transferring Range – A Military Range that is proposed to be leased, transferred, or returned by DoD to another entity, including federal entities. This includes a Military Range that was used under the terms of a withdrawal, executive order, special-use permit or authorization, right-of-way, public land order, or other instrument issued by the Federal land manager or Property Owner. An active range will not be considered a "transferring range" until the transfer is imminent.

Unexploded Ordnance (UXO) – Military munitions that have been primed, fused, armed, or otherwise prepared for action; have been fired, dropped, launched, projected, or placed in such a manner as to constitute a hazard to operations, installations, personnel, or material; and remain unexploded either by malfunction, design, or any other cause.

Unrestricted Public Access (UPA) – There are no restrictions on the use of the range or site (excavation is allowed).

Inventory Data Requirements

The goal of this CTT inventory is to identify locations, periods of use, and types of ordnance used on CTT military ranges and UXO-DMM-MC sites associated with Fort Devens. Specific requirements included (1) mapping the CTT military ranges

and UXO-DMM-MC sites; (2) collecting and preparing data to be uploaded into ARID, (3) conducting an assessment of explosives safety risk using the Risk Assessment Code (RAC) methodology for each CTT military range or site containing UXO or DMM identified in the inventory; and (4) determining which sites on the inventory qualify for the MRP. Descriptions of the data requirements for the maps, ARID, and the RAC methodology are outlined below.

Range and Site Map Requirements

A CTT map was created as part of the inventory and is included in Section E. The CTT map provides a complete picture of the CTT ranges and sites on Fort Devens BRAC property.

ARID Data Requirements

The CTT inventory data are driven by the requirements of ARID. The *ARID Upload Instructions* (14 January 2003) outline the minimum data elements required for completing the range inventory. According to the instructions, the following files are required for the inventory:

- Points of Contact
- Installation
- Range
- Munitions
- Ownership
- Land Use Restriction and Access Controls
- Range Demographics
- Map
- RMIS Site Information
- DSERTS Site Information

A printed copy of each file submitted to ARID is provided in Section F.

Risk Assessment Code Methodology

The CTT inventory team was required to perform an explosives safety risk assessment, using the RAC methodology, on each CTT military range and UXO-DMM sites identified in the inventory. RAC scores are not appropriate for sites containing only MC. The RAC methodology is a process that USACE designed to evaluate the relative explosive risk associated with past ordnance-related disposal, testing, or training. The RAC score assists in prioritizing and sequencing projects. The RAC process is described in Appendix B of USACE Engineering Pamphlet 1110-1-18, *Ordnance and Explosive Response* (24 April 2000) and referenced in the updated management guidance for DERP. The analysis involves a worksheet that, when completed, assigns a relative score (RAC score) to the sites. The RAC score is a number from 1 (highest explosives safety risk) to 5 (negligible explosives safety

risk). Response actions at a site may serve to reduce the explosive safety risk, but will not change the RAC score. A summary of the calculated RAC scores and the completed RAC worksheets for each CTT range and UXO-DMM site inventoried are included in Section G.

DERP Eligibility Determination

The CTT inventory team is required to determine the DERP eligibility of each range and site included in the inventory. This is done to ensure ranges and sites are not double counted if already included under the IRP. It is also performed to ensure only ranges with UXO-DMM-MC meeting the requirements identified in the DERP Management Guidance, September 2001, are included in the MRP. Results of the DERP eligibility determination include IRP, MRP, or other (not eligible). To make this determination the following must be considered.

- Does the site have a DSERTS Site ID?
- Does the current DSERTS cost to complete (CTC) include a response to all UXO-DMM-MC?
- Does the DSERTS site have a BRAC UXO flag?
- When the DSERTS site is listed as response complete (RC), is it listed as RC because of ineligibility of funding for UXO or munitions?

After the determination of whether the range or site, including its associated UXO-DMM-MC aspects, is currently covered under the IRP, it must be determined whether the range or site is eligible for the MRP. If the range or site is not currently covered under the IRP and is not eligible for the MRP, it should be classified as "other." As appropriate, based on the eligibility determination, RMIS range ID and RMIS site ID numbers are then assigned.

C. INSTALLATION SUMMARY

This section provides a brief summary of the history of Fort Devens and a summary of the data collection portion of the CTT inventory for the BRAC and non-FUDS transferred property, including the types of records reviewed and personnel contacted.

Installation Overview and Description

Fort Devens [Federal Facility Identification (FFID): MA210420270] is located in Middlesex and Worcester Counties of Massachusetts. It was created in 1917 when over 11,000 acres were leased to form Camp Devens in response to America's entry into World War I. Camp Devens served as New England's reception center for draftees during World War I, but was placed in caretaker status in September 1921. During the caretaker period, Fort Devens was used for training of Reserve Officer's Training Corps (ROTC), Citizen's Military Training Corps, the National Guard, and U.S. Army Reserve units. After World War II started in Europe, Fort Devens received rehabilitation in preparation for America's entry into the conflict. The installation once again served as New England's major reception center. Major tenants during the period included the 1st, 32nd, and 45th Divisions; a Women's Army Corps unit; the 4th Engineer Amphibian Brigade; and the 366th Infantry Regiment. German prisoners of war were interned at Fort Devens from 1944 to 1946, and several experimental aspects of modern warfare were used at the installation, including amphibious assaults, tank-destroyer units, and combined armor-infantry operations. Fort Devens returned to caretaker status from June 1946 until the summer of 1948. The installation remained active through the Korean Conflict training regular Army, National Guard, and ROTC units. The 2nd Infantry Brigade, a Strategic Army Corps unit, trained at Devens in the 1950s and 1960s. The 196th Light Infantry Brigade trained at the installation before deploying for the Vietnam Conflict. Fort Devens also sent units to the Middle East in 1990–1991 for Operations Desert Shield/Storm and Provide Comfort. Fort Devens was selected for closure under BRAC 1991. It is a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) National Priorities List (NPL) site. The USACE, New England District has assumed the mission of implementing BRAC 91 environmental restoration work at Fort Devens.

Conventional ordnance training at Fort Devens included grenades, small arms, bayonet and assault courses, live-fire artillery, mortar, demolition, and maneuver area training with small arms blank ammunition and pyrotechnics. Flares, signaling devices and smokes of all forms were also used throughout the former Fort Devens. Training ordnance included high explosive (HE), HEAT, illuminating, white phosphorus, and practice. The list of potential conventional ammunitions that may have been used at the former Fort Devens covers the spectrum from large caliber/HE to small arms blanks.

The former Fort Devens was additionally used for a variety of chemical warfare training activities. Chemical munitions contained a variety of smokes, tear gas, carbon tetrachloride, and white phosphorus. Chemical mortars are known to have been fired. In 1942, the Edgewood Arsenal in Maryland sent 32 M1 Gas ID Sets to Fort Devens and received permission to send 790 lb of FS and 309 lb of CNB and planned a shipment including liquid mustard gas, chemical land mines, and incendiary bombs. It is not known whether the planned shipment was actually received at Fort Devens. The Archives Search Report (ASR) quotes one reference, which states, "Instructors released chlorine and other deadly fumes through the area, and the men fought the gas clouds with fires, fans, beaters, and spades." Nonetheless, Fort Devens is not listed in DSERTS as one that may potentially contain non-stockpile chemical materials sites.

The ASR identifies the former Fort Devens as being comprised of three distinct areas totaling 9,300 acres: the North Post, Main Post, and South Post. The ASR additionally identifies considerable properties outside of the BRAC boundary that were transferred between 1917 and 1994 (outside of BRAC). No information regarding this property or its historic use was available. Only a small portion of the property was identified by USACE as FUDS. Refer to Figure C-1 for a general map of the former Fort Devens. The Main Post historically provided all of the on-post housing, including over 1,700 family units and 9,800 bachelor units, community services, administrative buildings, classroom and training facilities, maintenance facilities, and ammunition storage. The North Post is located directly north of the Main Post. The principal activity on the North Post was the Douglas E Moore Army Airfield. The airfield was used for military purposes and consisted of two fixed wing runways and two rotary wing runways. The North Post also contains the wastewater treatment plant for Fort Devens, including associated infiltration basins and sludge drying beds. The remainder of the North Post was designated as troop training areas. A total of 27 former ranges were identified on the North and Main Posts. The following ranges were identified in the ASR:

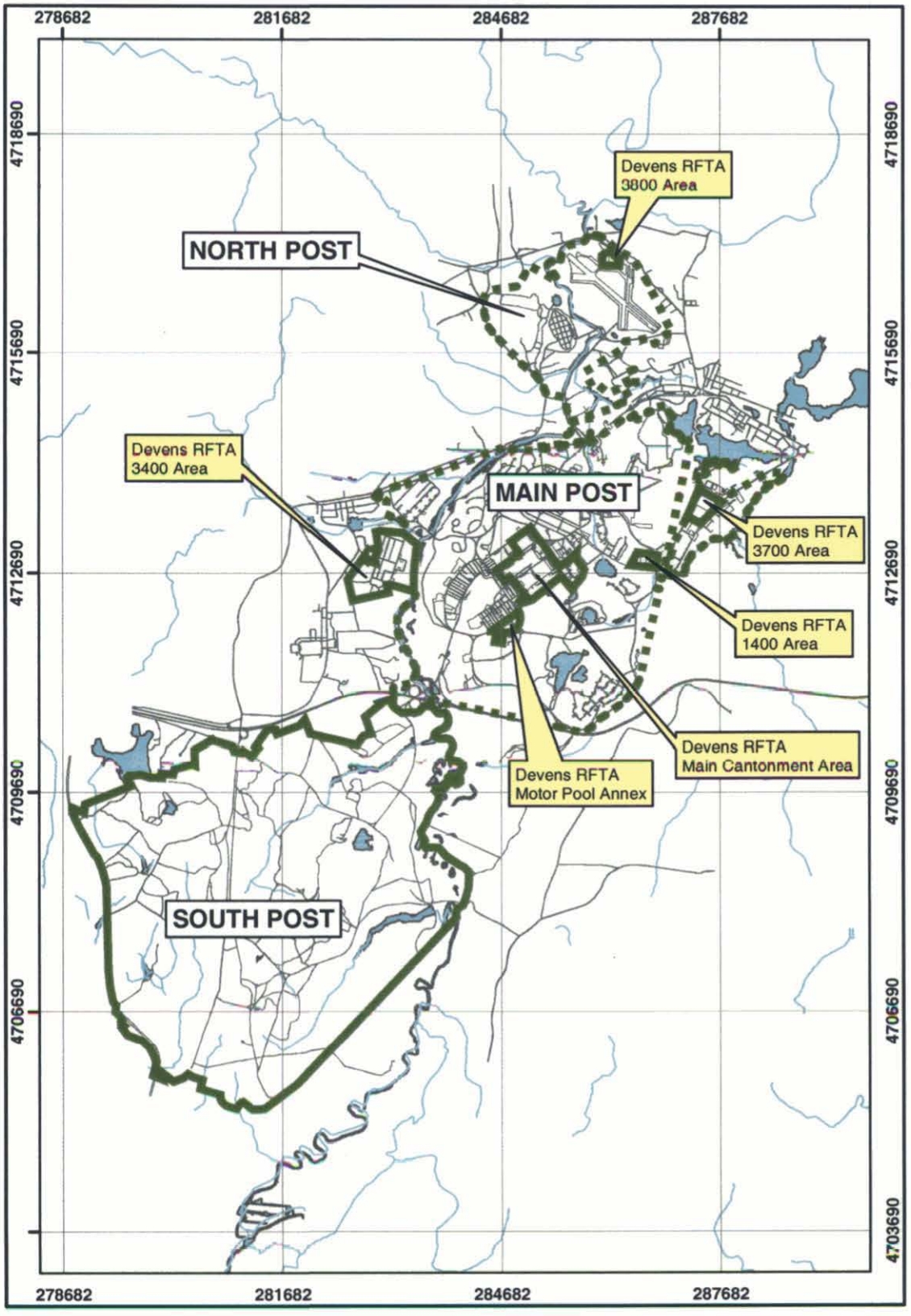
- Range 1
- Range 1A
- Range 1B
- Range 1C
- Range 2
- Range 3
- Range 4
- Range 5
- Range 6
- Range 7
- Range 8
- Range 9
- Range 10
- Range 11
- Range 12
- Range 13
- Training Area 1
- Training Area 2
- Training Area 3
- Training Area 7
- Training Area 9
- Training Area 10
- Training Area 11
- Training Area 12
- Training Area 14
- Training Area 15
- Training Area 16

The South Post is located south of Massachusetts Highway 2 and contains individual training areas designated for troop training, range activities, and a drop zone. The South Post and several hundred acres of the Main and North Posts are retained for military use. All current active military training ranges are located within the bounds of the South Post. On 31 March 1996, Fort Devens was inactivated and

General Map of Fort Devens

URS

Figure C-1



N
W E
S

Installation Boundary
Pre-BRAC Boundary
Water
Streams
Roads

1:80,000

0 0.5 1 1.5 Kilometers
0 0.5 1 1.5 Miles

Installation Location
Massachusetts

General Note:
All polygons representing active, inactive, non-range, retained, closed, transferred and/or transferring ranges are approximated as to size, shape and spatial position.

was officially closed as an active Army installation. In accordance with BRAC, most of the properties that formerly comprised the North and Main Post were transferred either to federal entities such as the U.S. Fish and Wildlife Service (USFWS), Department of Labor, or Department of Justice or to the Massachusetts Government Land Bank/Massachusetts Development and Finance Agency, Devens Commerce Center (MDFA). MDFA is now referred to as Mass Development (MassDev).

The remaining properties were realigned within the Army and now comprise the Devens RFTA. The RFTA contains approximately 5,182 acres, 4,837 acres of which lie in the South Post. The remaining 345 acres contain the majority of the installation's administrative buildings and structures and are located on either the Main or North Post. The retained properties include the following parcels (refer to Figure C-1): Main Cantonment, Motor Pool Annex, 1400 Area, 3400 Area, and the 3700 Area on the Main Post; the 3800 Area on the North Post; and all of the South Post. A portion of these properties will transfer or be leased at some point in the future, following completion of the ongoing environmental remediation efforts. However, since these properties currently comprise the Devens RFTA, they are not included within the scope of this CTT inventory.

A number of ranges identified by the BRAC inventory team overlie Devens RFTA parcels on the North and Main Posts, overlie private properties surrounding the former installation, and/or overlie FUDS property. The acreage associated with ranges emanating from BRAC property that overlie Devens RFTA property and private properties outside the former installation boundaries are reported in the Devens RFTA CTT report. Similarly, the acreage associated with ranges emanating BRAC property that overlie adjacent FUDS property are included in the FUDS CTT analysis. FUDS boundaries were obtained from Ms. Julie Kaiser and Ms. Rochelle Hance of USACE.

The ASR includes copies of explosive ordnance disposal (EOD) incident documentation from a number of years and additionally summarizes the findings. The findings are significant and span a variety of ordnance too expansive to list. Ordnance has been located both on and off the installation. During a visual surface site inspection conducted by the ASR team, USACE personnel discovered 3 HE Stokes mortars and 11 M1 chemical land mines. The ASR team completed a RAC evaluation of the installation and assigned a RAC score of 1.

As a result of its findings, the ASR team recommended a statistical sampling of over 2,300 acres, including 313 acres of adjacent FUDS property. In December 1995, HFA of Waldorf, Maryland completed the sampling under contract to the USACE, Huntsville District. HFA conducted an ordnance, ammunition, and explosives sampling action at 30 separate sites throughout the North and Main Posts. All UXO found during the sampling were cleared. Ordnance and explosives (OE) findings were depicted on a series of maps produced as a result of this ordnance, ammunition, and explosives sampling action. These maps were used by the CTT

inventory team to relate OE findings to the various range complexes and ascertain RAC scores.

As a result of the sampling and surface clearance action, HFA and USACE recommended additional UXO investigation of four separate sites and was then contracted to perform the clearance. USACE, in coordination with HFA, determined that no further action was required to address the remaining sites. From 9 August 1995 through 21 September 1996, HFA conducted a UXO survey of approximately 280 acres comprising Site 25. Of the 280 acres surveyed, 70 acres were designated for surface and subsurface clearance to 4 ft and the remaining 210 acres were designated for surface clearance. From 22 April through 23 August 1996, HFA performed a clearance of 986 100- x 200-ft grids comprising Sites 1,11, and 12 and totaling approximately 413 acres. Of the 413 acres, 45 acres were designated for subsurface clearance.

Documentation related to Findings of Suitability to Transfer were available for review for some but not all of the transferred property. The CTT inventory team reviewed documents related to the transfer of 1,080 acres, including the USFWS, Federal Bureau of Prisons, and Verbeck Housing Area. In areas where surface clearances were performed to a depth of 4 ft, digging activities are restricted at depths greater than 4 ft and under roadways and structures. Digging restrictions and easements to allow DoD access to conduct future UXO response actions, if necessary, have been applied to the remainder of the BRAC properties as well.

The CTT inventory team investigated the following DSERTS Site IDs as part of the archival search:

- FTDV-017, Little Mirror Lake
- FTDV-025, Impact Area - EOD Range [Area of Concern (AOC) 25]
- FTDV-026, Zulu Range (AOC 26)
- FTDV-027, Hotel Range (AOC 27)
- FTDV-028, Waste Explosives Detonation Range (SA28)
- FTDV-042, Popping Furnace
- FTDV-060, Training Area and Ranges [Area Requiring Environmental Evaluation (AREE) 60]

Of these, only FTDV-017 and FTDV-060 are located within the boundaries of the BRAC property. The remaining sites are located within the boundaries of the South Post of Fort Devens, which is an active U.S. Army Reserve Command (USARC) installation. Little Mirror Lake qualifies for this CTT inventory because it is located within Fort Devens BRAC property and was assigned a BRAC UXO Flag of XU. It is listed as such due to the discovery and removal of 200 World War II-era hand grenades. Since the site has been closed out with regulatory agreement, it is classified as "Other" and was not assigned a RMIS ID number. DSERTS site FTDV-060 included the 30 sites addressed by the sampling and clearance activities

conducted by HFA during 1995 and 1996 and is also classified as "Other" due to closure with regulatory agreement.

Based upon the UXO investigation and clearance activities conducted by HFA and guidance received from AEC, the 27 ranges identified at Fort Devens were combined into four range complexes. Three of the complexes are defined in Section D and are identified on the installation map located in Section E. The fourth complex consists of non-BRAC properties described in the CTT inventory for Devens RFTA.

Contractor Team Composition

The CTT inventory team for Fort Devens was represented by URS. The CTT inventory team leader for Fort Devens was Ms. Kyra Sexton. Team members included Ms. Susie Brooks, Ms. Anna Tang, and Mr. Brent Collier.

Installation Points of Contact

The Fort Devens primary point of contact for the CTT inventory was Mr. Ben Goff, BRAC Environmental Coordinator, Devens BRAC Environmental Office. His contact information is as follows:

Mr. Ben Goff
BRAC Environmental Office
30 Quebec Street
Building 666
Devens, MA 01432
(978) 796-2205 (phone)
(978) 796-3133 (fax)
goffb@devens-emh1.army.mil

Mr. Tom Poole and Mr. Tom Strunk of the Devens RFTA Environmental Division provided additional support. GIS data were provided by Mr. Takashi Tada, GIS/Environmental Analyst for the Devens BRAC Environmental Office.

Nature of Data Collection and Coordination

Specific records and maps reviewed are listed in the document log (see Section I).

Summary of Critical Data Sources

The ASR, historical maps viewed during the site visit, and personnel interviews served as the critical data sources for this report.

D. INSTALLATION CTT RANGE AND SITE DATA

This section details the CTT military ranges and UXO-DMM-MC sites on or associated with Fort Devens BRAC property only. It includes a summary of the total range and site area in acres, a summary of each individual CTT military range and site, a table listing the details of each CTT range and site, a table with ownership and accessibility information, and a table illustrating the DERP eligibility determination.

Summary of CTT Ranges and UXO-DMM-MC Sites

The following is a summary of the estimated range and site area on Fort Devens BRAC property:

A/I Range and Site Area: 4,587.6 acres
CTT Range and Site Area: 3,914.2 acres
Total Range and Site Area: 8,501.8 acres

The CTT acreage figures by ownership are provided in Table D-1.

Table D-1: Ownership Summary Table

Installation	Range or Site Name	Ownership	CTT Acreage
Fort Devens	Little Mirror Lake	State Agency (MassDev)	6.9
Fort Devens	Range Complex 1	State Agency (MassDev); Local Government (City/County Utility and Wastewater Treatment Plant); Federal Agency (USFWS, Federal Bureau of Prisons)	748.4
Fort Devens	Range Complex 2	Local Government (City/County Utility and Wastewater Treatment Plant); Federal Agency (USFWS, Federal Bureau of Prisons); State Agency (MassDev, National Guard)	1,315.3
Fort Devens	Range Complex 3	Federal Agency (USFWS); State Agency (MassDev); Private Sector	1,843.6
		TOTAL	3,914.2

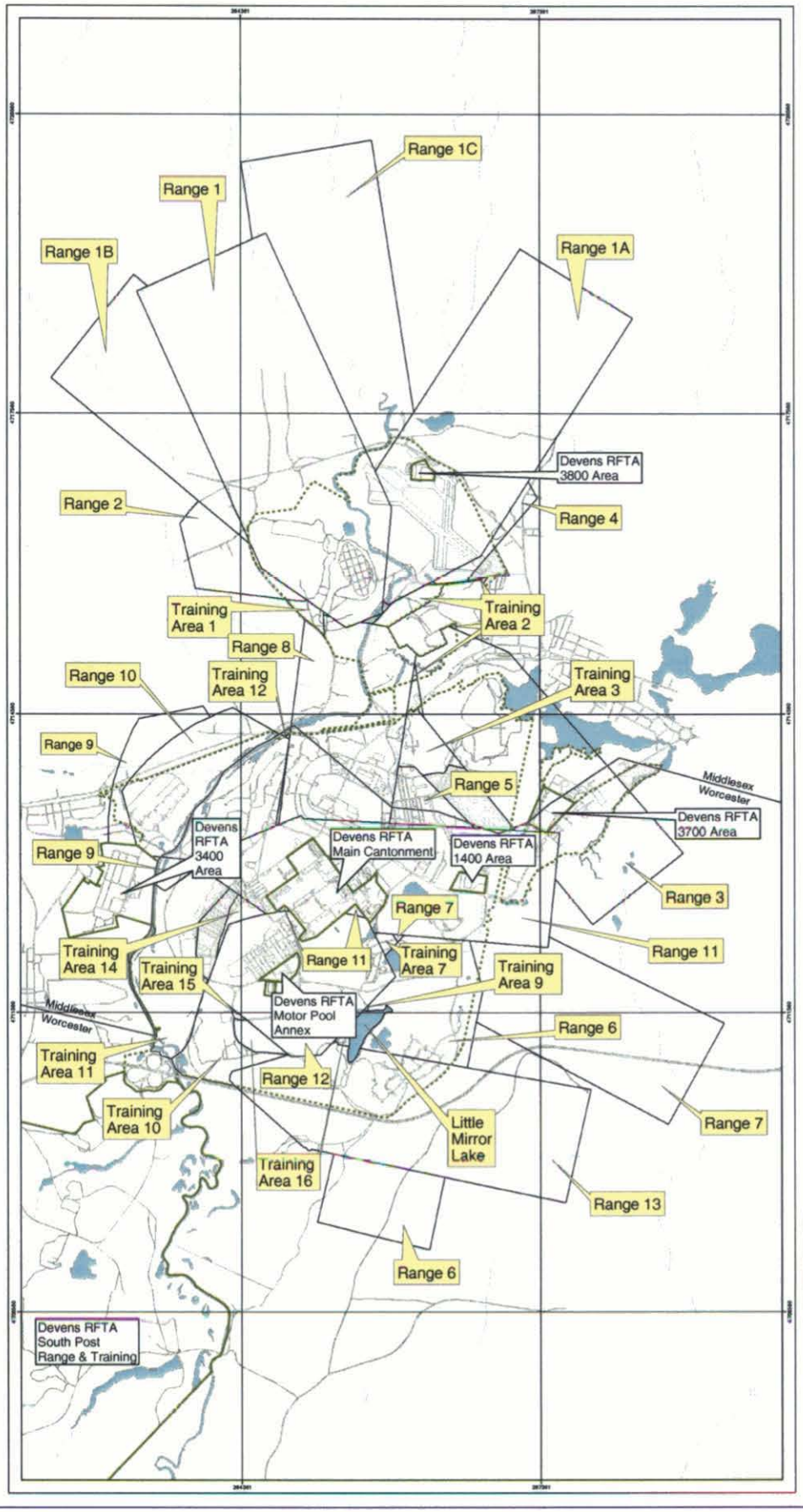
CTT Range and Site Summaries

The location and aerial extent of the training areas were gleaned from maps included in the ASR, as were the location and direction of fire for the identified ranges. However, no range fans could be found on any of the available historical documents. Therefore, in accordance with inventory procedure, the Surface Danger Zone (SDZs) as developed by USACE, St. Louis District were used to delineate the 16 range fans. Overlapping training areas and SDZs are shown in Figure D-1. Historical documents and maps were used to guide the selection of the appropriate SDZ. It should be noted that using the SDZ is an extremely conservative approach

Fort Devens Training Areas and Range Delineations

URS

Figure D-1

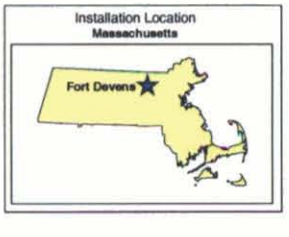


Current Installation Boundary
Pre-BRAC Boundary
County Line
Water
Streams
Contours
Roads

1:20,000

0 0.25 0.5 1 Kilometers

0 0.25 0.5 1 Miles



General Note:
All polygons representing active, inactive, non-range, retained, closed, transferred and/or transferring ranges are approximated as to size, shape and spatial position.

to delineating range fans. This method does not take into consideration berms or terrain that may have reduced the extent of the fan. All SDZs are based on typical small arms and grenade ranges, to include 1000" ranges. However, historical range documents contained in the ASR reveal that artillery and/or mortar training was authorized on Fort Devens, though no specific range or firing position was indicated. This fact is supported by the numerous findings of large caliber ordnance and mortars throughout Fort Devens properties. In consideration of the extensive UXO investigation and clearance conducted on the North and Main Posts and guidance received from AEC, the ranges were grouped into four range complexes, based on the extent of UXO investigation and/or removal conducted on the properties (refer to Figures E-2 through E-4). Range Complex 1 comprises four land parcels that were sampled and then cleared from surface to a depth of 4 ft, depending on the extent of UXO contamination. Range Complex 2 comprises 26 land parcels that were sampled and surface cleared. Range Complex 3 comprises all remaining BRAC property. This property was included in an archival review and photographic analysis, but no additional UXO investigation was deemed necessary. Range Complex 4 comprises the extent of the SDZs of former ranges that emanate from within BRAC properties but extend beyond the BRAC boundary. The non-BRAC properties identified in Range Complex 4 have not yet been studied or investigated for munitions. Since Range Complex 4 consists of non-BRAC properties, the acreage associated with the Complex is excluded from this BRAC CTT report and will be included in the CTT report for the Devens RFTA.

Below are summaries for the individual CTT range complexes and UXO-DMM-MC site inventoried on Fort Devens BRAC property. Each summary typically includes a brief history of the area, total acreage, relative location, types of ordnance used or discarded, periods of use, information on any UXO responses conducted, and current use. The sites reported to ARID and included in the CTT range and site summary details table are adjusted so that areas are not counted more than once in the inventory. Some summaries are more detailed than others based on the level of data available.

This CTT inventory identified three CTT range complexes and one qualifying UXO-DMM-MC site on Fort Devens BRAC property. Range locations are depicted on Figure 1 (Section E). Information used to write these descriptions was obtained from the sources listed in Section I.

Little Mirror Lake – One UXO site, Little Mirror Lake (FTDV-017), was identified during the inventory. The lake occupies 6.9 acres and is located in the southeast corner of the Main Post. A remedial action was conducted at this site in 1995 to remove World War II grenades. The removal was completed and the site was closed in 1996. No other ordnance are known to be present. The history of the site and periods of use are not known. The presence of the grenades in the lake may have been attributed to either training or improper disposal. The lake is currently part of a recreation area.

Range Complex 1 – The total acreage for Range Complex 1, as determined by GIS mapping, is 748.4 acres. The complex comprises four individual land parcels that were sampled and then cleared from surface to a depth of 4 ft, depending on the extent of UXO contamination. The parcels, designated Sites 1, 11, 12, and 25, were sampled and cleared by HFA in 1995 and 1996. These sites were portions of former small arms ranges and former training/maneuver areas used from 1917 through 1966. Mortar and artillery training was also conducted within this complex and is assumed to have occurred during the same period. Site 1 is located on the North Post, Sites 11 and 12 are located in the northern portion of the Main Post, and Site 25 is located in the southern portion of the Main Post.

After completing a UXO sampling of 30 individual sites in 1995, HFA and USACE recommended Sites 1, 11, 12, and 25 for additional investigation and removal.

From 9 August 1995 through 21 September 1996, HFA conducted a UXO survey of approximately 280 acres comprising Site 25. Of the 280 acres surveyed, 70 acres were designated for surface and subsurface clearance to 4 ft and the remaining 210 acres were designated for surface clearance. From 22 April through 23 August 1996, HFA performed a clearance of 986 100- x 200-ft grids comprising Sites 1,11, and 12 and totaling approximately 413 acres. Of the 413 acres, 45 acres were designated for subsurface clearance. The UXO found included 3" Stokes mortars, 37mm projectiles, smoke grenades, rifle grenades, practice landmines, small arms ammunition, and various pyrotechnics. All properties comprising Range Complex 1 were found suitable for transfer and are now occupied by a wastewater treatment plant, a hydrogenerating facility, portions of a recreational area, prison facilities, and residential areas. Digging restrictions at depths greater than 4 ft and under roadways and structures have been stipulated in property deeds. Additionally, easements have been applied to allow DoD access should a future UXO response be necessary.

Range Complex 2 – The total acreage for Range Complex 2, as determined by GIS mapping, is 1,315.3 acres. Range Complex 2 consists of the remaining 26 sites sampled by HFA in 1995. These 26 sites were investigated for surface UXO. No subsurface clearance was deemed necessary. Sites 2 and 3, located on the North Post, each extend into FUDS property. Only the BRAC portions of the sites were included in this inventory. The 24 remaining sites are located throughout the Main Post. The sites were portions of former small arms and former training/maneuver areas used from 1917 through 1966. Mortar and artillery training was also conducted within this complex, and is assumed to have occurred during the same period. The UXO found within the range complex in 1995 included 3" Stokes mortars, 37mm projectiles, smoke grenades, rifle grenades, hand grenades, landmines, chemical mortars, fuzes, and various pyrotechnics. The sampling and surface removal actions conducted in 1995 were sufficient to meet the required cleanup standards. All properties comprising Range Complex 2 were found suitable for transfer and are now occupied by a wastewater treatment plant, office complexes, a prison hospital, National Guard administrative areas, residential areas, and recreational area.

Digging restrictions and easements to allow DoD to conduct future UXO response actions, if necessary, have been applied.

Range Complex 3 – The total acreage for Range Complex 1, as determined by GIS mapping, is 1,843.6 acres. Range Complex 3 consists of all remaining property inside the former installation boundary on both the North and Main Posts. This property was included in an archival review and photographic analysis performed by the USACE ASR team. Based on a review of all available data, it was determined that no further investigation was warranted. The properties included in Range Complex 3 were portions of former small arms ranges and training/maneuver areas used from 1917 through 1966. Munitions known to be used on these ranges included small arms, flares, and various other pyrotechnics. Since no OE sampling was conducted on these properties, the RAC score was based on known historical use. All properties comprising Range Complex 3 were found suitable for transfer and are now occupied by office complexes and residential areas.

CTT Range and Site Details Table

The CTT Range and Site Details Table (Table D-2) provides detailed information on the CTT areas included in the inventory.

Table D-2: CTT Range and Site Details Table

Installation	Range or Site Name	Classification	Total Area for ARID (Acres)	Munitions Type(s)	Munitions Constituents	RAC Score[a]	Historic Use
Fort Devens	Little Mirror Lake	Transferred	6.9	Hand Grenades, Live	Unknown	2	Hand Grenade
Fort Devens	Range Complex 1	Transferred	748.4	Flares, Signals, Simulators, or Screening Smoke (Other Than White Phosphorous); Ground Rockets, Rifle Grenades (Smoke, WP, Incendiary); Hand Grenades (Smoke, WP, Incendiary); Landmine, Practice (With Spotting Charges); Large Caliber (37mm and Larger), HE; Mortars, HE; Pyrotechnics; Small Arms	Unknown	2	Small Arms, Mortar, Artillery

Installation	Range or Site Name	Classification	Total Area for ARID (Acres)	Munitions Type(s)	Munitions Constituents	RAC Score[a]	Historic I
Fort Devens	Range Complex 2	Transferred	1,315.3	Blasting Caps, Fuzes, Boosters, or Bursters; Flares, Signals, Simulators, or Screening Smoke (Other Than White Phosphorous); Ground Rockets, Rifle Grenades (Smoke, WP, Incendiary); Ground Rockets, Rifle Grenades, Live; Ground Rockets, Rifle Grenades, Practice; Hand Grenades (Smoke, WP, Incendiary); Hand Grenades, Live; Hand Grenades, Practice; Landmines, Anti-Personnel; Landmine, Practice (With Spotting Charges); Landmines, Anti-Tank; Large Caliber (37mm and Larger), HE; Mortars, HE; Mortars, Practice; Practice Ordnance (w/o Spotting Charges); Pyrotechnics; Small Arms; Toxic Chemical Munitions	Unknown	1	Small Arms, Training Area/ Maneuver Area, Mortar
Fort Devens	Range Complex 3	Transferred	1,843.6	Flares, Signals, Simulators, or Screening Smoke (Other Than White Phosphorous); Pyrotechnics; Small Arms	Unknown	4	Small Arms, Training Area/ Maneuver Area

[a]The RAC score is a prioritization and sequencing tool used to rank the explosives safety risk at a site; 1 is the highest explosives safety risk, 5 is the lowest explosives safety risk. The RAC score is discussed further in Section G. The RAC score is only developed for range, UXO, and DMM sites, not MC sites.

CTT Range and Site Ownership, Use and Access Control Summary Table

The CTT Range and Site Ownership Table (Table D-3) provides a summary of the owner, current use, and access restrictions associated with each CTT range and site in the inventory.

Table D-3: CTT Range and Site Ownership, Use, and Access Control Summary Table

Installation	Range or Site Name	Ownership	Current Use	Restrictions
Fort Devens	Little Mirror Lake	State Agency (MassDev)	Recreational	Digging Permits, Easements, Restrictive Covenants
Fort Devens	Range Complex 1	State Agency (MassDev); Local Government (City/County Utility and Wastewater Treatment Plant); Federal Agency (USFWS, Federal Bureau of Prisons)	Other (Prison), Utility/Ground Improvements, Residential-Single Family	Fences, Guards, Locked Gates, Digging Permits, Easements, Restrictive Covenants
Fort Devens	Range Complex 2	Local Government (City/County Utility and Wastewater Treatment Plant); Federal Agency (USFWS, Federal Bureau of Prisons); State Agency (MassDev, National Guard)	Recreational, Office Buildings, Industrial/Production Facilities	Digging Permits, Easements, Restrictive Covenants
Fort Devens	Range Complex 3	Federal Agency (USFWS); State Agency (MassDev); Private Sector	Office Buildings, Residential-Single Family	Easements

DERP Eligibility Table

The RMIS Information Table (Table D-4) and the DERP Eligibility Table (Table D-5) provide a summary of the process for determining a site's DERP eligibility. Specifically, if it should be covered under the MRP or if it is already addressed under the IRP and should remain under that program. For those sites that are not DERP eligible due to a lack of UXO-DMM-MC contamination (i.e., bayonet ranges, drop zones, or sites that have been surveyed and cleared of UXO contamination), the table identifies the DERP eligibility as "other."

Table D-4: RMIS Information Table

Installation	Range or Site Name	DSERTS Site ID	DSERTS CTC Includes UXO and DMM	DSERTS Site ID Has BRAC UXO Flag	DSERTS RC Flag	RC Reason[a]	Active DSERTS Phase(s)
Fort Devens	Little Mirror Lake	FTDV-017	N	Y	Y	A	—
Fort Devens	Range Complex 1	FTDV-060	N	Y	Y	B	—
Fort Devens	Range Complex 2	FTDV-060	N	Y	Y	B	—
Fort Devens	Range Complex 3	FTDV-060	N	Y	Y	B	—

[a] A = All required cleanup(s) complete
B = Study completed; no response required
C = Not eligible for DERA/BRAC funding
D = Other
N = No
Y = Yes

Table D-5: DERP Eligibility Table

Installation	Range or Site Name	Range	DERP Eligibility	RMIS Range ID	RMIS Site ID
Fort Devens	Little Mirror Lake	N	Other	—	—
Fort Devens	Range Complex 1	Y	Other	—	—
Fort Devens	Range Complex 2	Y	Other	—	—
Fort Devens	Range Complex 3	Y	Other	—	—

N = No
Y = Yes

E. CTT RANGE AND SITE MAPS

A CTT map was generated for the CTT inventory for Fort Devens BRAC property. The CTT map shows all the range and site areas associated with the BRAC property. An electronic version (.pdf file) of the map has been provided as an upload to ARID. The CTT map for Fort Devens BRAC property is included as Figure E-1 in this section. Individual detail maps showing the three range complexes are shown in Figures E-2 through E-4.

F. ARID DATA FILES

This section contains a printout of the ARID data files submitted to AEC for the CTT inventory for Fort Devens. The files were set up according to the guidelines in the *ARID Upload Instructions* (14 January 2003). The following files are included:

- Points of Contact
- Installation
- Range
- Munitions
- Ownership
- Land Use Restriction and Access Controls
- Range Demographics
- RMIS Site Information
- DSERTS Information

POC Table

06/30/2003

INSTALLATION NAME	FFID	LAST NAME	FIRST NAME	POC TITLE	POC ORG
DEVENS RFTA	MA210420270	GOFF	BEN	BRAC ENVIRONMENTAL COORDINATOR	DEVENS RFTA

POC TYPE: CTT

PHONE	ADDRESS
PHONE 978-796-2205	BRAC ENVIRONMENTAL OFFICE
DSN	30 QUEBEC STREET
FAX 978-796-3133	BUILDING 666
EMAIL GOFFB@DEVENS-EMH1.ARMY.MIL	DEVENS, MA 01432
	UNITED STATES

Installation Table

06/30/2003

INSTALLATION NAME	FFID	MACOM	MSC	PARENT INSTALLATION	A/I RANGE	CTT RANGE	BRAC ROUND	DERA FLAG	FUDS FLAG
DEVENS RFTA	MA210420270	USARC	N/A		Y	Y	1991	Y	N

Range Table

06/30/2003

RMIS RANGE ID:

INSTALLATION NAME	FFID	RANGE/SITE NAME	STATUS	SEVERITY SCORE	PROBABILITY SCORE	RAC SCORE
DEVENS RFTA	MA210420270	LITTLE MIRROR LAKE	TRANSFERRED	II	B	2

RANGE DESCRIPTION

Grenades found in the lake resulting from either incidental use from the surrounding ranges and training areas or disposal.

CTT TOTAL ACRES	MMR ACRES IDENTIFIED	MMR ACRES SUSPECTED	MMR ACRES NOT SUSPECTED
6.90	0.00	6.90	0.00

UTM ZONE	UTM DATUM	UTM X	UTM Y	CONSTRUCTION DATE	RIP RC DATE
19	NAD83	285763.88243	4711292.15087	19170101	

COMMENT

One UXO site, Little Mirror Lake (FTDV-017), was identified during the inventory. The lake occupies 6.9 acres and is located in the southeast corner of the Main Post. A remedial action was conducted at this site in 1995 to remove World War II grenades. The removal was completed and the site was closed in 1996. No other ordnance are known to be present. The history of the site and periods of use are not known. The presence of the grenades in the lake may have been attributed to either training or improper disposal. The lake is currently part of a recreation area.

TOPOGRAPHY	VEGETATION	SOIL TYPE
WATER		

		START YEAR
CURRENT USE 1	RECREATIONAL	1996
CURRENT USE 2	N/A	
CURRENT USE 3	N/A	

		START YEAR	END YEAR
HISTORIC USE 1	HAND GRENADE	1995	1996
HISTORIC USE 2	N/A		
HISTORIC USE 3	N/A		

Range Table

06/30/2003

RMIS RANGE ID:

INSTALLATION NAME	FFID	RANGE/SITE NAME	STATUS	SEVERITY SCORE	PROBABILITY SCORE	RAC SCORE
DEVENS RFTA	MA210420270	RANGE COMPLEX 1	TRANSFERRED	II	B	2

RANGE DESCRIPTION

Range Complex 1 is comprised of four individual land parcels contained within the former boundary of Fort Devens that were sampled and cleared from surface to a depth of 4 ft, depending on the extent of UXO contamination.

CTT TOTAL ACRES	MMR ACRES IDENTIFIED	MMR ACRES SUSPECTED	MMR ACRES NOT SUSPECTED
748.40	0.00	748.40	0.00

UTM ZONE	UTM DATUM	UTM X	UTM Y	CONSTRUCTION DATE	RIP RC DATE
19	NAD83	284927.8457	4714124.3733	19170101	19921201

COMMENT

Range Complex 1 comprises 4 individual land parcels that were sampled and then cleared from surface to a depth of 4 ft, depending on the extent of UXO contamination. The parcels, designated Sites 1, 11, 12, and 25, were sampled and cleared by HFA in 1995 and 1996. These sites were portions of former small arms ranges and former training/maneuver areas used from 1917 through 1966. Mortar and artillery training was also conducted within this complex and is assumed to have occurred during the same period. Site 1 is located on the North Post, Sites 11 and 12 are located in the northern portion of the Main Post, and Site 25 is located in the southern portion of the Main Post. All properties comprising Range Complex 1 were found suitable for transfer and are now occupied by a wastewater treatment plant, a hydrogenerating facility, portions of a recreational area, prison facilities, and residential areas. The "Other" designation for current use below refers to the use of a portion of the properties as a Federal prison facility. Digging restrictions at depths greater than 4 ft and under roadways and structures have been stipulated in property deeds. Additionally, easements have been applied to allow DoD access should a future UXO response be necessary.

TOPOGRAPHY	VEGETATION	SOIL TYPE
GENTLY ROLLING	LOW GRASS AND FEW SHRUBS	SAND/GRAVEL SAND

		START YEAR
CURRENT USE 1	OTHER	1996
CURRENT USE 2	UTILITY/GROUND IMPROVEMENTS	1996
CURRENT USE 3	RESIDENTIAL - SINGLE FAMILY	1996

		START YEAR	END YEAR
HISTORIC USE 1	SMALL ARMS	1917	1966
HISTORIC USE 2	MORTAR	1917	1966
HISTORIC USE 3	ARTILLERY	1917	1966

Range Table

06/30/2003

RMIS RANGE ID:

INSTALLATION NAME	FFID	RANGE/SITE NAME	STATUS	SEVERITY SCORE	PROBABILITY SCORE	RAC SCORE
DEVENS RFTA	MA210420270	RANGE COMPLEX 2	TRANSFERRED	I	B	1

RANGE DESCRIPTION

Range Complex 2 is comprised of 26 individual land parcels contained within the former boundary of Fort Devens that were investigated for surface UXO.

CTT TOTAL ACRES	MMR ACRES IDENTIFIED	MMR ACRES SUSPECTED	MMR ACRES NOT SUSPECTED
1,315.30	0.00	1,315.30	0.00

UTM ZONE	UTM DATUM	UTM X	UTM Y	CONSTRUCTION DATE	RIP RC DATE
19	NAD83	285777.1141	4712551.8249	19170101	19921201

COMMENT

Range Complex 2 comprises 26 individual land parcels sampled by HFA in 1995. These 26 sites were investigated for surface UXO. No subsurface clearance was deemed necessary. Sites 2 and 3, located on the North Post, each extend into FUDS property. Only the BRAC portions of the sites were included in this inventory. The 24 remaining sites are located throughout the Main Post. The sites were portions of former small arms and former training/maneuver areas used from 1917 through 1966. Mortar and artillery training was also conducted within this complex, and is assumed to have occurred during the same period. All properties comprising Range Complex 2 were found suitable for transfer and are now occupied by a wastewater treatment plant, office complexes, a prison hospital, National Guard administrative areas, residential areas, and recreational area. Digging restrictions and easements to allow DoD to conduct future UXO response actions, if necessary, have been applied.

TOPOGRAPHY	VEGETATION	SOIL TYPE
GENTLY ROLLING	LOW GRASS AND FEW SHRUBS	SAND/GRAVEL SAND

		START YEAR
CURRENT USE 1	RECREATIONAL	1996
CURRENT USE 2	OFFICE BUILDINGS	1996
CURRENT USE 3	INDUSTRIAL/PRODUCTION FACILITIES	1996

		START YEAR	END YEAR
HISTORIC USE 1	SMALL ARMS	1917	1965
HISTORIC USE 2	TRAINING AREA/MANEUVER AREA	1917	1965
HISTORIC USE 3	MORTAR	1917	1965

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Range Table

06/30/2003

RMIS RANGE ID:

INSTALLATION NAME	FFID	RANGE/SITE NAME	STATUS	SEVERITY SCORE	PROBABILITY SCORE	RAC SCORE
DEVENS RFTA	MA210420270	RANGE COMPLEX 3	TRANSFERRED	IV	B	4

RANGE DESCRIPTION

Range Complex 3 is comprised of all property within the former boundary of Fort Devens that was included in archival review and photographic analysis, but that was neither sampled for, nor cleared of, UXO.

CTT TOTAL ACRES	MMR ACRES IDENTIFIED	MMR ACRES SUSPECTED	MMR ACRES NOT SUSPECTED
1,843.60	0.00	1,843.60	0.00

UTM ZONE	UTM DATUM	UTM X	UTM Y	CONSTRUCTION DATE	RIP RC DATE
19	NAD83	285370.7633	4713862.4794	19170101	

COMMENT

Range Complex 3 comprises all property inside the former installation boundary on both the North and Main Posts that was neither sampled nor cleared of UXO. This property was included in an archival review and photographic analysis performed by the USACE ASR team. Based on a review of all available data, it was determined that no further investigation was warranted. The properties included in Range Complex 3 were portions of former small arms ranges and training/maneuver areas used from 1917 through 1966. Munitions known to be used on these ranges included small arms, flares, and various other pyrotechnics. All properties comprising Range Complex 3 were found suitable for transfer and are now occupied by office complexes and residential areas.

TOPOGRAPHY	VEGETATION	SOIL TYPE
GENTLY ROLLING	LOW GRASS AND FEW SHRUBS	CLAY-SAND/CLAY-SILT

		START YEAR
CURRENT USE 1	OFFICE BUILDINGS	1996
CURRENT USE 2	RESIDENTIAL - SINGLE FAMILY	1996
CURRENT USE 3	N/A	

		START YEAR	END YEAR
HISTORIC USE 1	SMALL ARMS	1917	1966
HISTORIC USE 2	TRAINING AREA/MANEUVER AREA	1917	1966
HISTORIC USE 3	N/A		

Munitions Table

06/30/2003

INSTALLATION NAME	FFID	RANGE/SITE NAME
DEVENS RFTA	MA210420270	LITTLE MIRROR LAKE

DODIC	DODIC DESCRIPTION	START DATE	END DATE	MUNITIONS EXPENDED
CTT05	HAND GRENADES, LIVE	01/1942	01/1966	

INSTALLATION NAME	FFID	RANGE/SITE NAME
DEVENS RFTA	MA210420270	RANGE COMPLEX 1

DODIC	DODIC DESCRIPTION	START DATE	END DATE	MUNITIONS EXPENDED
CTT42	FLARES, SIGNALS, SIMULATORS, OR SCREENING SMOKE (OTHER THAN WHTE PHOSP)	01/1917	01/1966	
CTT19	GROUND ROCKETS, RIFLE GRENADES (SMOKE, WP, INCENDIARY)	01/1917	01/1966	
CTT18	HAND GRENADES (SMOKE, WP, INCENDIARY)	01/1917	01/1966	
CTT39	LANDMINE, PRACTICE (WITH SPOTTING CHARGES)	01/1942	01/1966	
CTT11	LARGE CALIBER (37MM AND LARGER), HE	01/1917	01/1966	
CTT23	MORTARS, HE	01/1917	01/1966	
CTT15	PYROTECHNICS	01/1917	01/1966	
CTT16	SMALL ARMS	01/1917	01/1966	

INSTALLATION NAME	FFID	RANGE/SITE NAME
DEVENS RFTA	MA210420270	RANGE COMPLEX 2

DODIC	DODIC DESCRIPTION	START DATE	END DATE	MUNITIONS EXPENDED
CTT38	BLASTING CAPS, FUZES, BOOSTERS, OR BURSTERS	01/1917	01/1965	

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CTT42	FLARES, SIGNALS, SIMULATORS, OR SCREENING SMOKE (OTHER THAN WHTE PHOSP)	01/1917	01/1965
CTT19	GROUND ROCKETS, RIFLE GRENADES (SMOKE, WP, INCENDIARY)	01/1917	01/1965
CTT07	GROUND ROCKETS, RIFLE GRENADES, LIVE	01/1917	01/1965
CTT08	GROUND ROCKETS, RIFLE GRENADES, PRACTICE	01/1917	01/1965
CTT18	HAND GRENADES (SMOKE, WP, INCENDIARY)	01/1917	01/1965
CTT05	HAND GRENADES, LIVE	01/1917	01/1965
CTT06	HAND GRENADES, PRACTICE	01/1917	01/1965
CTT39	LANDMINE, PRACTICE (WITH SPOTTING CHARGES)	01/1917	01/1965
CTT09	LANDMINES, ANTI-PERSONNEL	01/1917	01/1965
CTT28	LANDMINES, ANTI-TANK	01/1917	01/1965
CTT11	LARGE CALIBER (37MM AND LARGER), HE	01/1917	01/1965
CTT23	MORTARS, HE	01/1917	01/1965
CTT25	MORTARS, PRACTICE	01/1917	01/1965
CTT41	PRACTICE ORDNANCE (WITHOUT SPOTTING CHARGES)	01/1917	01/1965
CTT15	PYROTECHNICS	01/1917	01/1965
CTT16	SMALL ARMS	01/1917	01/1965
CTT17	TOXIC CHEMICAL MUNITIONS	01/1917	01/1965

INSTALLATION NAME	FFID	RANGE/SITE NAME
DEVENS RFTA	MA210420270	RANGE COMPLEX 3

DODIC	DODIC DESCRIPTION	START DATE	END DATE	MUNITIONS EXPENDED

CTT42	FLARES, SIGNALS, SIMULATORS, OR SCREENING SMOKE (OTHER THAN WHTE PHOSP)	01/1917	01/1966
CTT15	PYROTECHNICS	01/1917	01/1966
CTT16	SMALL ARMS	01/1917	01/1966

Ownership Table

06/30/2003

INSTALLATION NAME	FFID	RANGE/SITE NAME	ALL ARMY OWNED	OWNER	OWNER DESCRIPTION
DEVENS RFTA	MA210420270	LITTLE MIRROR LAKE	N	STATE AGENCY	MASSDEV

FEDERAL LEASE FLAG	STATE LEASE FLAG	LOCAL LEASE FLAG	TRIBAL LEASE FLAG	PRIVATE LEASE FLAG	OTHER LEASE FLAG	OTHER LEASE DESCRIPTION	LEASE TERMINATED	REVOCATION OF LAND
N	N	N	N	N	N	N/A	N	N

INSTALLATION NAME	FFID	RANGE/SITE NAME	ALL ARMY OWNED	OWNER	OWNER DESCRIPTION
DEVENS RFTA	MA210420270	RANGE COMPLEX 1	N	STATE AGENCY	MASSDEV

FEDERAL LEASE FLAG	STATE LEASE FLAG	LOCAL LEASE FLAG	TRIBAL LEASE FLAG	PRIVATE LEASE FLAG	OTHER LEASE FLAG	OTHER LEASE DESCRIPTION	LEASE TERMINATED	REVOCATION OF LAND
N	N	N	N	N	N	N/A	N	N

Ownership Table

06/30/2003

INSTALLATION NAME	FFID	RANGE/SITE NAME	ALL ARMY OWNED	OWNER	OWNER DESCRIPTION
DEVENS RFTA	MA210420270	RANGE COMPLEX 1	N	LOCAL GOVERNMENT	CITY/COUNTY UTILITY AND WASTEWATER TREATMENT PLANT

FEDERAL LEASE FLAG	STATE LEASE FLAG	LOCAL LEASE FLAG	TRIBAL LEASE FLAG	PRIVATE LEASE FLAG	OTHER LEASE FLAG	OTHER LEASE DESCRIPTION	LEASE TERMINATED	REVOCATION OF LAND
N	N	N	N	N	N	N/A	N	N

INSTALLATION NAME	FFID	RANGE/SITE NAME	ALL ARMY OWNED	OWNER	OWNER DESCRIPTION
DEVENS RFTA	MA210420270	RANGE COMPLEX 1	N	FEDERAL AGENCY	U.S FISH AND WILDLIFE SERVICE; FEDERAL BUREAU OF PRISON

FEDERAL LEASE FLAG	STATE LEASE FLAG	LOCAL LEASE FLAG	TRIBAL LEASE FLAG	PRIVATE LEASE FLAG	OTHER LEASE FLAG	OTHER LEASE DESCRIPTION	LEASE TERMINATED	REVOCATION OF LAND
N	N	N	N	N	N	N/A	N	N

Ownership Table

06/30/2003

INSTALLATION NAME	FFID	RANGE/SITE NAME	ALL ARMY OWNED	OWNER	OWNER DESCRIPTION
DEVENS RFTA	MA210420270	RANGE COMPLEX 2	N	LOCAL GOVERNMENT	CITY/COUNTY UTILITY AND WASTEWATER TREATMENT PLANT

FEDERAL LEASE FLAG	STATE LEASE FLAG	LOCAL LEASE FLAG	TRIBAL LEASE FLAG	PRIVATE LEASE FLAG	OTHER LEASE FLAG	OTHER LEASE DESCRIPTION	LEASE TERMINATED	REVOCATION OF LAND
N	N	N	N	N	N	N/A	N	N

INSTALLATION NAME	FFID	RANGE/SITE NAME	ALL ARMY OWNED	OWNER	OWNER DESCRIPTION
DEVENS RFTA	MA210420270	RANGE COMPLEX 2	N	FEDERAL AGENCY	U.S. FISH AND WILDLIFE SERVICE ; FEDERAL BUREAU OF PRISONS

FEDERAL LEASE FLAG	STATE LEASE FLAG	LOCAL LEASE FLAG	TRIBAL LEASE FLAG	PRIVATE LEASE FLAG	OTHER LEASE FLAG	OTHER LEASE DESCRIPTION	LEASE TERMINATED	REVOCATION OF LAND
N	N	N	N	N	N	N/A	N	N

Ownership Table

06/30/2003

INSTALLATION NAME	FFID	RANGE/SITE NAME	ALL ARMY OWNED	OWNER	OWNER DESCRIPTION
DEVENS RFTA	MA210420270	RANGE COMPLEX 2	N	STATE AGENCY	MASSDEV ; NATIONAL GUARD

FEDERAL LEASE FLAG	STATE LEASE FLAG	LOCAL LEASE FLAG	TRIBAL LEASE FLAG	PRIVATE LEASE FLAG	OTHER LEASE FLAG	OTHER LEASE DESCRIPTION	LEASE TERMINATED	REVOCATION OF LAND
N	N	N	N	N	N	N/A	N	N

INSTALLATION NAME	FFID	RANGE/SITE NAME	ALL ARMY OWNED	OWNER	OWNER DESCRIPTION
DEVENS RFTA	MA210420270	RANGE COMPLEX 3	N	FEDERAL AGENCY	U.S. FISH AND WILDLIFE SERVICE

FEDERAL LEASE FLAG	STATE LEASE FLAG	LOCAL LEASE FLAG	TRIBAL LEASE FLAG	PRIVATE LEASE FLAG	OTHER LEASE FLAG	OTHER LEASE DESCRIPTION	LEASE TERMINATED	REVOCATION OF LAND
N	N	N	N	N	N	N/A	N	N

Ownership Table

06/30/2003

INSTALLATION NAME	FFID	RANGE/SITE NAME	ALL ARMY OWNED	OWNER	OWNER DESCRIPTION
DEVENS RFTA	MA210420270	RANGE COMPLEX 3	N	STATE AGENCY	MASSDEV

FEDERAL LEASE FLAG	STATE LEASE FLAG	LOCAL LEASE FLAG	TRIBAL LEASE FLAG	PRIVATE LEASE FLAG	OTHER LEASE FLAG	OTHER LEASE DESCRIPTION	LEASE TERMINATED	REVOCATION OF LAND
N	N	N	N	N	N	N/A	N	N

INSTALLATION NAME	FFID	RANGE/SITE NAME	ALL ARMY OWNED	OWNER	OWNER DESCRIPTION
DEVENS RFTA	MA210420270	RANGE COMPLEX 3	N	PRIVATE SECTOR	UNKNOWN

FEDERAL LEASE FLAG	STATE LEASE FLAG	LOCAL LEASE FLAG	TRIBAL LEASE FLAG	PRIVATE LEASE FLAG	OTHER LEASE FLAG	OTHER LEASE DESCRIPTION	LEASE TERMINATED	REVOCATION OF LAND
N	N	N	N	N	N	N/A	N	N

Land Use Restriction Table

06/30/2003

INSTALLATION NAME	FFID	RANGE/SITE NAME	RESTRICTION TYPE	RESTRICTION	PUBLIC ACCESS
DEVENS RFTA	MA210420270	LITTLE MIRROR LAKE	LAND USE RESTRICTION	DIGGING PERMITS	RPA
DESCRIPTION:					
DEVENS RFTA	MA210420270	LITTLE MIRROR LAKE	LAND USE RESTRICTION	EASEMENTS	RPA
DESCRIPTION:					
DEVENS RFTA	MA210420270	LITTLE MIRROR LAKE	LAND USE RESTRICTION	RESTRICTIVE COVENANTS	RPA
DESCRIPTION:					

PUBLIC ACCESS DEFINITIONS

NPA = No Public Access: The public does not have any access to the range/site.

LPA = Limited Public Access: The public does have some access to the range/site, but that access doesn't involve any digging, only surface access, such as livestock grazing or use as a wildlife preserve or refuge.

RPA = Restricted Public Access: The public does have some access to the range/site and that access may involve some surface disturbance, such as agricultural use, forestry, recreation, and vehicle or supply storage facility use.

UPA = Unrestricted Public Access: There are no restrictions on the use of the range/site (excavation is allowed).

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Land Use Restriction Table

06/30/2003

INSTALLATION NAME	FFID	RANGE/SITE NAME	RESTRICTION TYPE	RESTRICTION	PUBLIC ACCESS
DEVENS RFTA	MA210420270	RANGE COMPLEX 1	ACCESS CONTROL	FENCES	UPA
DESCRIPTION:					
DEVENS RFTA	MA210420270	RANGE COMPLEX 1	ACCESS CONTROL	GUARDS	UPA
DESCRIPTION:					
DEVENS RFTA	MA210420270	RANGE COMPLEX 1	ACCESS CONTROL	LOCKED GATES	UPA
DESCRIPTION:					
DEVENS RFTA	MA210420270	RANGE COMPLEX 1	LAND USE RESTRICTION	DIGGING PERMITS	UPA
DESCRIPTION:					
DEVENS RFTA	MA210420270	RANGE COMPLEX 1	LAND USE RESTRICTION	EASEMENTS	UPA
DESCRIPTION:					
DEVENS RFTA	MA210420270	RANGE COMPLEX 1	LAND USE RESTRICTION	RESTRICTIVE COVENANTS	UPA
DESCRIPTION:					

PUBLIC ACCESS DEFINITIONS

NPA = No Public Access: The public does not have any access to the range/site.

LPA = Limited Public Access: The public does have some access to the range/site, but that access doesn't involve any digging, only surface access, such as livestock grazing or use as a wildlife preserve or refuge.

RPA = Restricted Public Access: The public does have some access to the range/site and that access may involve some surface disturbance, such as agricultural use, forestry, recreation, and vehicle or supply storage facility use.

UPA = Unrestricted Public Access: There are no restrictions on the use of the range/site (excavation is allowed).

Land Use Restriction Table

06/30/2003

INSTALLATION NAME	FFID	RANGE/SITE NAME	RESTRICTION TYPE	RESTRICTION	PUBLIC ACCESS
DEVENS RFTA	MA210420270	RANGE COMPLEX 2	LAND USE RESTRICTION	DIGGING PERMITS	UPA
DESCRIPTION:					
DEVENS RFTA	MA210420270	RANGE COMPLEX 2	LAND USE RESTRICTION	EASEMENTS	UPA
DESCRIPTION:					
DEVENS RFTA	MA210420270	RANGE COMPLEX 2	LAND USE RESTRICTION	RESTRICTIVE COVENANTS	UPA
DESCRIPTION:					

INSTALLATION NAME	FFID	RANGE/SITE NAME	RESTRICTION TYPE	RESTRICTION	PUBLIC ACCESS
DEVENS RFTA	MA210420270	RANGE COMPLEX 3	LAND USE RESTRICTION	EASEMENTS	UPA
DESCRIPTION:					

PUBLIC ACCESS DEFINITIONS

NPA = No Public Access: The public does not have any access to the range/site.

LPA = Limited Public Access: The public does have some access to the range/site, but that access doesn't involve any digging, only surface access, such as livestock grazing or use as a wildlife preserve or refuge.

RPA = Restricted Public Access: The public does have some access to the range/site and that access may involve some surface disturbance, such as agricultural use, forestry, recreation, and vehicle or supply storage facility use.

UPA = Unrestricted Public Access: There are no restrictions on the use of the range/site (excavation is allowed).

Range Demographics Table

06/30/2003

INSTALLATION NAME	FFID	RANGE/SITE NAME	TYPE	NAME	STATE	COUNTRY
DEVENS RFTA	MA210420270	LITTLE MIRROR LAKE	COUNTY	WORCESTER	MA	UNITED STATES
DEVENS RFTA	MA210420270	RANGE COMPLEX 1	COUNTY	MIDDLESEX & WORCESTER	MA	UNITED STATES
DEVENS RFTA	MA210420270	RANGE COMPLEX 2	COUNTY	MIDDLESEX & WORCESTER	MA	UNITED STATES
DEVENS RFTA	MA210420270	RANGE COMPLEX 3	COUNTY	MIDDLESEX & WORCESTER	MA	UNITED STATES

DSERTS Information Table

06/30/2003

INSTALLATION NAME	FFID	RANGE/SITE NAME	DSERTS SITE ID	DSERTS CTC INCLUDES UXO-DMM	DSERTS SITE ID HAS BRAC UXO FLAG	DERP ELIGIBILITY	RMIS SITE ID
DEVENS RFTA	MA210420270	LITTLE MIRROR LAKE	FTDV-017	N	Y	OTHER	

DSERTS PHASE	RESPONSE COMPLETE FLAG	RESPONSE COMPLETE REASON
	Y	ALL REQUIRED CLEANUP(S) COMPLETED

INSTALLATION NAME	FFID	RANGE/SITE NAME	DSERTS SITE ID	DSERTS CTC INCLUDES UXO-DMM	DSERTS SITE ID HAS BRAC UXO FLAG	DERP ELIGIBILITY	RMIS SITE ID
DEVENS RFTA	MA210420270	RANGE COMPLEX 1	FTDV-060	N	Y	OTHER	

DSERTS PHASE	RESPONSE COMPLETE FLAG	RESPONSE COMPLETE REASON
	Y	STUDY COMPLETED, NO CLEANUP REQUIRED

INSTALLATION NAME	FFID	RANGE/SITE NAME	DSERTS SITE ID	DSERTS CTC INCLUDES UXO-DMM	DSERTS SITE ID HAS BRAC UXO FLAG	DERP ELIGIBILITY	RMIS SITE ID
DEVENS RFTA	MA210420270	RANGE COMPLEX 2	FTDV-060	N	Y	OTHER	

DSERTS PHASE	RESPONSE COMPLETE FLAG	RESPONSE COMPLETE REASON
	Y	STUDY COMPLETED, NO CLEANUP REQUIRED

DSERTS Information Table

06/30/2003

INSTALLATION NAME	FFID	RANGE/SITE NAME	DSERTS SITE ID	DSERTS CTC INCLUDES UXO-DMM	DSERTS SITE ID HAS BRAC UXO FLAG	DERP ELIGIBILITY	RMIS SITE ID
DEVENS RFTA	MA210420270	RANGE COMPLEX 3	FTDV-060	N	Y	OTHER	

DSERTS PHASE	RESPONSE COMPLETE FLAG	RESPONSE COMPLETE REASON
	Y	STUDY COMPLETED, NO CLEANUP REQUIRED

G. RISK ASSESSMENT CODE (RAC) ANALYSIS

As part of this CTT Inventory, the CTT inventory team performed an assessment of explosives safety risk using the RAC process for each CTT military range and UXO-DMM site inventoried. RAC is a pre-response priority sequencing tool that does not take cleanup actions into consideration. As designed by USACE, a site's RAC score is calculated and revised up to the end of the site's investigation as an expression of the explosives risk at the site. The RAC scoring performed under this CTT inventory is based on the ordnance determined to have been used, discarded, or disposed of at the CTT military range or UXO-DMM site as determined through interviews, installation visits, and historic records reviews and does not reflect any cleanup action s that may have already been performed at the installation. Hence, the RAC score may not reflect the current risk at the CTT military range or UXO-DMM site. DoD is currently developing a new priority assessment tool for sites with explosives risk. Until the new tool is approved for use, DoD is mandating the use of RAC scoring for the analysis of explosives risk associated with CTT military ranges and UXO-DMM sites identified during this CTT inventory.

The RAC process uses a worksheet that consists of a series of questions regarding the range or site. As the worksheet is completed, it defines a relative value for the severity and probability of explosives safety associated with the range or site. The worksheet then combines the severity and probability values to arrive at an overall score (RAC score). The RAC score is an estimate of the relative explosives risk, which is reported as a number between 1 and 5. Response actions at a site may serve to reduce the explosive safety risk, but will not change the RAC score. The following is a description of the RAC scores.

RAC 1	High Explosives Safety Risk - Highest priority for further action.
RAC 2	Serious Explosives Safety Risk - Priority for further action.
RAC 3	Moderate Explosives Safety Risk - Recommend further action.
RAC 4	Low Explosives Safety Risk - Recommend further action.
RAC 5	Negligible Explosives Safety Risk - No explosive related action necessary.

The area, probability value, severity value, and overall RAC score for each of the CTT range, UXO, and DMM sites in the inventory are provided in Table G-1. RAC scores are not appropriate for sites containing only MC. The completed RAC worksheets for each range and UXO-DMM site in the CTT inventory are also included in this section.

Table G-1: Risk Assessment Code Analysis Results

Installation	Range or Site Name	Acres	Severity*	Probability**	RAC Score
Fort Devens	Little Mirror Lake	6.9	II	B	2
Fort Devens	Range Complex 1	748.4	II	B	2
Fort Devens	Range Complex 2	1,315.3	I	B	1
Fort Devens	Range Complex 3	1,843.6	IV	B	4

* Severity – 5 possible classifications from I (catastrophic) to V (none).
** Probability – 5 possible classifications from A (frequent) to E (improbable).
*** According to the RAC worksheet instructions, if the severity value is V, the probability value does not need to be calculated and a RAC value of 5 should be assigned to the range.

RISK ASSESSMENT CODE WORKSHEETS
Little Mirror Lake

THE RISK ASSESSMENT CODE FOR ORDNANCE AND EXPLOSIVES (OE) SITES

Site Name	Little Mirror Lake	**Rater's Name**	Susie Brooks
Site Location	Fort Devens, MA	**Phone Number**	(865) 483-9870
Range Classification	Transferred	**Organization**	URS Group, Inc.
Date Completed	February 1, 2002	**Score**	2

BACKGROUND:

These risk assessment procedures were developed by the U.S. Army Engineering and Support Center, Huntsville, Ordnance and Explosives Team (CEHNC-OE) to prioritize the response action(s) at formerly used defense sites. The procedures were developed in accordance with MIL-STD 882C and AR 385-10.

The Department of Defense (DoD) is adopting the procedures, as an interim DoD-wide standard, to provide a set of uniform procedures for assessing explosives safety risks at Defense Environmental Restoration Program sites.

Risk Assessment Code (RAC) scores developed using these procedures will be used by DoD for risk assessment at sites suspected to contain unexploded ordnance (UXO) or other explosive safety hazards.

The risk assessment should be based on the best available information resulting from record searches, reports of Explosive Ordnance Disposal (EOD) Detachment actions, field observations, interviews, and measurements. This information is used to assess the risk involved base on the *potential* explosives safety hazards identified at the site. The risk assessment is composed of two factors, hazard severity and hazard probability.

PROCEDURES

PART I. HAZARD SEVERITY. Hazard severity categories are defined to provide a qualitative measure of the worst credible event resulting from personnel exposure to various types and quantities of UXO.

TYPE OF ORDNANCE: (Circle all that apply)

A.	**Conventional ordnance and ammunition:**	**VALUE**
	Medium/large caliber (20mm and larger)	10
	Bombs, explosive	10
	Grenades, hand or rifle, explosive	10
	Landmine, explosive	10
	Rockets, guided missile, explosive	10
	Detonators, blasting caps, fuzes, boosters, bursters	6
	Bombs, practice (w/spotting charges)	6
	Grenades, practice (w/spotting charges)	4
	Landmine, practice (w/spotting charges)	4
	Small arms, complete round (.22 cal -.50 cal)	1
	Small arms, expended	0
	Practice ordnance (w/o spotting charges)	0
	Conventional ordnance and ammunition (largest single value)	**10**

What evidence do you have regarding conventional UXO?

Little Mirror Lake is a DSERTS site due to the presence of WWII grenades in the lake. The site was investigated and all required cleanup was completed in December 1995.

B.	**Pyrotechnics (for munitions not described above):**	**VALUE**
	Munition (containers) containing white phosphorus (WP) or other pyrophoric material (i.e., spontaneously flammable)	10
	Munition containing a flame or incendiary material (i.e., Napalm, Triethylaluminum metal incendiaries)	6
	Flares, signals, simulators, screening smokes (other than WP)	4
	Pyrotechnics (select the single largest value)	**0**

What evidence do you have regarding pyrotechnics?

No evidence was found indicating the use of pyrotechnics.

C.	**Bulk High Explosives (not an integral part of conventional ordnance; uncontainerized):**	**VALUE**
	Primary or initiating explosives (lead styphnate, lead azide, nitroglycerin, mercury azide, mercury fulminate, tetracene, etc.)	10
	Demolition charges	10
	Secondary explosives (PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	8
	Military dynamite	6
	Less sensitive explosives (ammonium nitrate, Explosive D, etc.)	3
	High explosives (select the single largest value)	**0**

What evidence do you have regarding bulk explosives?

No evidence was found indicating the use of bulk explosives.

D.	**Bulk propellants (not an integral part of rockets, guided missiles, or other conventional ordnance; uncontainerized):**	**VALUE**
	Solid or liquid propellants	6
	Propellants	**0**

What evidence do you have regarding bulk propellants?

No evidence was found indicating the use of bulk propellants.

E.	**Chemical Warfare Material (CWM) and Radiological Weapons:**	**VALUE**
	Toxic chemical agents (choking, nerve, blood, blister)	25
	War Gas Identification Sets	20
	Radiological	15
	Riot Control Agents (vomiting, tear)	5
	Chemical and Radiological (select the single largest value)	**0**

What evidence do you have regarding chemical or radiological?

The ASR lists numerous chemical agents used on the installation from 1917 through the early 1960s. However, the locations of use were not given in most instances. Since their use could not be confirmed in the lake and since a site investigation and cleanup have been conducted, they were not factored into this risk assessment.

TOTAL HAZARD SEVERITY VALUE (Sum of values A through E): **10** (maximum of 61)

Apply this value to Table 1 to determine Hazard Severity Category

TABLE 1:
HAZARD SEVERITY*

DESCRIPTION	CATEGORY	HAZARD SEVERITY VALUE
CATASTROPHIC	I	21 and/or greater
CRITICAL	II	10 to 20
MARGINAL	III	5 to 9
NEGLIGIBLE	IV	1 to 4
**NONE	V	0

* Apply Hazard Severity Category to Table 3
**If hazard severity value is 0, you do not need to complete Part II of this form. Proceed to Part III and use a RAC score of 5 to determine your appropriate action.

PART II. HAZARD PROBABILITY. The probability that a hazard has been, or will be, created due to the presence and other rated factors of UXO or explosive materials on a formerly used DoD site.

AREA, EXTENT, ACCESSIBILITY OF UXO AND OE HAZARDS (Circle all that apply)

A. Locations of UXO and OE hazards:

	VALUE
On the surface	[5]
Within tanks, pipes, vessels, or other confined areas	4
Inside walls, ceilings, or other building/structure	3
Subsurface	2
Location (select the single largest value)	**5**

What evidence do you have regarding the location of UXO and OE?
During the 1995 UXO investigation, various UXO were discovered on the surface.

B. Distance to nearest inhabited location/structure likely to be at risk from the UXO or OE hazard (road, park, playground, building, etc.):

	VALUE
Less than 1,250 feet	[5]
1,250 feet to 0.5 mile	4
0.5 mile to 1.0 mile	3
1.0 mile to 2.0 Miles	2
Over 2 miles	1
Distance (select the single largest value)	**5**

What are the nearest inhabited structures/buildings?
The former installation is dense with structures as a result of the rapid development of the transferred BRAC property. There are a wide variety of structures, including commercial, recreational, and residential. The area is under continual development.

C. Number(s) of building(s) within a 2-mile radius measured from the UXO or OE hazard area, not the installation boundary:

	VALUE
26 and over	[5]
16 to 25	4
11 to 15	3
6 to 10	2
1 to 5	1
0	0
Number of buildings (select the single largest value)	**5**

Narrative:
The former installation is dense with structures as a result of the rapid development of the transferred BRAC property. The area is under continual development.

D. **Types of Buildings (within a 2 mile radius):**	VALUE
Educational, child care, residential, hospitals hotels, commercial, shopping centers	5
Industrial, warehouse, etc.	4
Agricultural, forestry, etc.	3
Detention, correctional	2
No buildings	0
Types of buildings (select the single largest value)	**5**

Describe the types of buildings:
The former installation is adjacent to the town of Ayer, MA, which is densely populated. The town has all the typical variety of structures found in a small town, including commercial, residential, schools, hospitals, etc.

E. **Accessibility to site refers to access by humans to ordnance and explosives. Use the following guidance:**	VALUE
No barrier nor security system	5
Barrier is incomplete (e.g., in disrepair or does not completely surround the site). Barrier is intended to deny egress from the site, as for a barbed wire fence for grazing.	4
A barrier (any kind of fence in good repair) but no separate means to control entry. Barrier is intended to deny access to the site.	3
Security guard, but no barrier	2
Isolated site	1
A 24-hour surveillance system (e.g., television monitoring or surveillance by guards or facility personnel continuously monitors and controls entry; or, an artificial or natural barrier (e.g., fence combined with a cliff) that completely surrounds the area; and, a means to control entry at all times through the gates or other entrances (e.g., an attendant, television monitors, locked entrances, or controlled roadway access to the area).	0
Accessibility (select the single largest value)	**5**

Describe the site accessibility:
The Devens BRAC office indicated that current owners may potentially have installed access controls, but the Devens BRAC office is not compiling this information. In the absence of data, the most conservative approach was taken and a value of 5 was selected for this category.

F. **Site Dynamics. This deals with site conditions that are subject to change in the future, but may be stable at the present. Examples would be excessive soil erosion on beaches or streams and increasing land development that could reduce distances from the site to inhabited areas or otherwise increase accessibility.** **VALUE**

Expected	5
None anticipated	0
Site Dynamics (select the single largest value)	**0**

Describe the site dynamics:

The Fort Devens area is anticipated to undergo continued land development. However, since the area already has a large number of buildings/residences, the addition will not change the overall dynamics of the site. The hazard probability values for numbers and types of buildings within a 2-mile radius are already at their highest values, so addition of more buildings will not increase the risk.

TOTAL HAZARD PROBABILITY VALUE (sum of largest values for A through F): **25**
(maximum of 30)

Apply this value to Hazard Probability Table 2 to determine the Hazard Probability Level.

TABLE 2
HAZARD PROBABILITY

DESCRIPTION	LEVEL	HAZARD PROBABILITY VALUE
FREQUENT	A	27 or greater
PROBABLE	B	21 to 26
OCCASIONAL	C	15 to 20
REMOTE	D	8 to 14
IMPROBABLE	E	less than 8

*Apply Hazard Probability Level to Table 3.

PART III. RISK ASSESSMENT. The risk assessment value for this site is determined using the following table. Enter the results of the Hazard Probability and Hazard Severity values. If the Hazard Severity value is 0, a Hazard Probability is not calculated and a RAC score of 5 is assigned to the site.

TABLE 3
RISK ASSESSMENT

PROBABILITY LEVEL		FREQUENT A	PROBABLE B	OCCASIONAL C	REMOTE D	IMPROBABLE E
SEVERITY CATEGORY:						
CATASTROPHIC	I	1	1	2	3	4
CRITICAL	II	1	2	3	4	5
MARGINAL	III	2	3	4	4	5
NEGLIGIBLE	IV	3	4	4	5	5

RISK ASSESSMENT CODE (RAC)

RAC 1 High Risk – Highest priority for further action.
RAC 2 Serious Risk – Priority for further action.
RAC 3 Moderate Risk – Recommend further action.
RAC 4 Low Risk – Recommend further action.
RAC 5 Negligible Risk – No explosive related action necessary.

PART IV. NARRATIVE. Summarize the documented evidence that supports this risk assessment. If no documented evidence was available, explain all the assumptions that were made.

All the evidence supporting the risk assessment was found in the DSERTS database and through discussions with installation points of contact. All sources of information indicated that Little Mirror Lake had been investigated and all UXO removed by December 1995.

RAC scores for the Army CTT inventory were developed from documentation of historical use. Subsequent response actions may serve to reduce the explosive safety hazard, but will not change the RAC score.

RISK ASSESSMENT CODE WORKSHEETS
Range Complex 1

THE RISK ASSESSMENT CODE FOR ORDNANCE AND EXPLOSIVES (OE) SITES

Site Name	Range Complex 1	**Rater's Name**	Susie Brooks
Site Location	Fort Devens, MA	**Phone Number**	(865) 483-9870
Range Classification	Transferred	**Organization**	URS Group, Inc.
Date Completed	18 April 2003	**Score**	**2**

BACKGROUND:

These risk assessment procedures were developed by the U.S. Army Engineering and Support Center, Huntsville, Ordnance and Explosives Team (CEHNC-OE) to prioritize the response action(s) at formerly used defense sites. The procedures were developed in accordance with MIL-STD 882C and AR 385-10.

The Department of Defense (DoD) is adopting the procedures, as an interim DoD-wide standard, to provide a set of uniform procedures for assessing explosives safety risks at Defense Environmental Restoration Program sites.

Risk Assessment Code (RAC) scores developed using these procedures will be used by DoD for risk assessment at sites suspected to contain unexploded ordnance (UXO) or other explosive safety hazards.

The risk assessment should be based on the best available information resulting from record searches, reports of Explosive Ordnance Disposal (EOD) Detachment actions, field observations, interviews, and measurements. This information is used to assess the risk involved base on the *potential* explosives safety hazards identified at the site. The risk assessment is composed of two factors, hazard severity and hazard probability.

PROCEDURES

PART I. HAZARD SEVERITY. Hazard severity categories are defined to provide a qualitative measure of the worst credible event resulting from personnel exposure to various types and quantities of UXO.

TYPE OF ORDNANCE: (Circle all that apply)

A.	**Conventional ordnance and ammunition:**	**VALUE**
	Medium/large caliber (20mm and larger)	[10]
	Bombs, explosive	10
	Grenades, hand or rifle, explosive	10
	Landmine, explosive	10
	Rockets, guided missile, explosive	10
	Detonators, blasting caps, fuzes, boosters, bursters	6
	Bombs, practice (w/spotting charges)	6
	Grenades, practice (w/spotting charges)	4
	Landmine, practice (w/spotting charges)	[4]
	Small arms, complete round (.22 cal -.50 cal)	1
	Small arms, expended	[0]
	Practice ordnance (w/o spotting charges)	0
	Conventional ordnance and ammunition (largest single value)	**10**

What evidence do you have regarding conventional UXO?

As a result of a UXO sampling and removal action conducted in 1995, three sites were selected for further removal action. From 22 April through 23 August 1996, HFA performed a clearance of 986 100x200-ft grids on HFA Sites 1, 11, and 12, totaling 413 acres. These three sites comprise Complex 1. The clearance was performed using magnetometers field checked against 3" Stokes mortars buried to a depth of 4 ft. Of the 413 acres, 45 acres were designated for subsurface clearance by USACE, Huntsville District. The munitions marked in this section were identified on the sites during the sampling and removal actions.

B. **Pyrotechnics (for munitions not described above):**	**VALUE**
Munition (containers) containing white phosphorus (WP) or other pyrophoric material (i.e., spontaneously flammable)	10
Munition containing a flame or incendiary material (i.e., Napalm, Triethylaluminum metal incendiaries)	6
Flares, signals, simulators, screening smokes (other than WP)	4
Pyrotechnics (select the single largest value)	**10**

What evidence do you have regarding pyrotechnics?

See evidence provided for item A.

C. **Bulk High Explosives (not an integral part of conventional ordnance; uncontainerized):**	**VALUE**
Primary or initiating explosives (lead styphnate, lead azide, nitroglycerin, mercury azide, mercury fulminate, tetracene, etc.)	10
Demolition charges	10
Secondary explosives (PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	8
Military dynamite	6
Less sensitive explosives (ammonium nitrate, Explosive D, etc.)	3
High explosives (select the single largest value)	**0**

What evidence do you have regarding bulk explosives?

No evidence was found indicating the use of bulk explosives.

D. **Bulk propellants (not an integral part of rockets, guided missiles, or other conventional ordnance; uncontainerized):**	**VALUE**
Solid or liquid propellants	6
Propellants	**0**

What evidence do you have regarding bulk propellants?

No evidence was found indicating the use of bulk propellants.

E. **Chemical Warfare Material (CWM) and Radiological Weapons:**	**VALUE**
Toxic chemical agents (choking, nerve, blood, blister)	25
War Gas Identification Sets	20
Radiological	15
Riot Control Agents (vomiting, tear)	5
Chemical and Radiological (select the single largest value)	**0**

What evidence do you have regarding chemical or radiological?
The ASR lists numerous chemical agents used on the installation from 1917 through the early 1960s. However, the locations of use were not given in most instances. Since their use could not be confirmed on the land area encompassed by Complex 1, they were not factored into this risk assessment.

TOTAL HAZARD SEVERITY VALUE (Sum of values A through E): **20** (maximum of 61)

Apply this value to Table 1 to determine Hazard Severity Category

TABLE 1:
HAZARD SEVERITY*

DESCRIPTION	CATEGORY	HAZARD SEVERITY VALUE
CATASTROPHIC	I	21 and/or greater
CRITICAL	II	10 to 20
MARGINAL	III	5 to 9
NEGLIGIBLE	IV	1 to 4
**NONE	V	0

* Apply Hazard Severity Category to Table 3
**If hazard severity value is 0, you do not need to complete Part II of this form. Proceed to Part III and use a RAC score of 5 to determine your appropriate action.

PART II. HAZARD PROBABILITY. The probability that a hazard has been, or will be, created due to the presence and other rated factors of UXO or explosive materials on a formerly used DoD site.

AREA, EXTENT, ACCESSIBILITY OF UXO AND OE HAZARDS (Circle all that apply)

A. **Locations of UXO and OE hazards:**	**VALUE**
On the surface	5
Within tanks, pipes, vessels, or other confined areas	4
Inside walls, ceilings, or other building/structure	3
Subsurface	2
Location (select the single largest value)	**2**

What evidence do you have regarding the location of UXO and OE?
During the 1995–1996 UXO investigation and removal, all surface and known subsurface (up to a depth of 4 ft) UXO were removed. A potential for subsurface UXO may still exist.

B. **Distance to nearest inhabited location/structure likely to be at risk from the UXO or OE hazard (road, park, playground, building, etc.):**	**VALUE**
Less than 1,250 feet	5
1,250 feet to 0.5 mile	4
0.5 mile to 1.0 mile	3
1.0 mile to 2.0 Miles	2
Over 2 miles	1
Distance (select the single largest value)	**5**

What are the nearest inhabited structures/buildings?
The former installation is dense with structures as a result of the rapid development of the transferred BRAC property. There are a wide variety of structures, including commercial, recreational, and residential. The area is under continual development.

C. **Number(s) of building(s) within a 2-mile radius measured from the UXO or OE hazard area, not the installation boundary:**

	VALUE
26 and over	[5]
16 to 25	4
11 to 15	3
6 to 10	2
1 to 5	1
0	0
Number of buildings (select the single largest value)	**5**

Narrative:
The former installation is dense with structures as a result of the rapid development of the transferred BRAC property. The area is under continual development.

D. **Types of Buildings (within a 2 mile radius):**

	VALUE
Educational, child care, residential, hospitals hotels, commercial, shopping centers	[5]
Industrial, warehouse, etc.	4
Agricultural, forestry, etc.	3
Detention, correctional	2
No buildings	0
Types of buildings (select the single largest value)	**5**

Describe the types of buildings:
The former installation is adjacent to the town of Ayer, MA, which is densely populated. The town has all the typical variety of structures found in a small town, including commercial, residential, schools, hospitals, etc.

E. **Accessibility to site refers to access by humans to ordnance and explosives. Use the following guidance:**

	VALUE
No barrier nor security system	[5]
Barrier is incomplete (e.g., in disrepair or does not completely surround the site). Barrier is intended to deny egress from the site, as for a barbed wire fence for grazing.	4
A barrier (any kind of fence in good repair) but no separate means to control entry. Barrier is intended to deny access to the site.	3
Security guard, but no barrier	2
Isolated site	1
A 24-hour surveillance system (e.g., television monitoring or surveillance by guards or facility personnel continuously monitors and controls entry; or, an artificial or natural barrier (e.g., fence combined with a cliff) that completely surrounds the area; and, a means to control entry at all times through the gates or other entrances (e.g., an attendant, television monitors, locked entrances, or controlled roadway access to the area).	0
Accessibility (select the single largest value)	**5**

Describe the site accessibility:
The Devens BRAC office indicated that current owners may potentially have installed access controls, but the Devens BRAC office is not compiling this information. In the absence of data, the most conservative approach was taken and a value of 5 was selected for this category.

F. Site Dynamics. This deals with site conditions that are subject to change in the future, but may be stable at the present. Examples would be excessive soil erosion on beaches or streams and increasing land development that could reduce distances from the site to inhabited areas or otherwise increase accessibility. **VALUE**

Expected	5
None anticipated	0
Site Dynamics (select the single largest value)	**0**

Describe the site dynamics:

The Fort Devens area is anticipated to undergo continued land development. However, since the area already has a large number of buildings/residences, the addition will not change the overall dynamics of the site. The hazard probability values for numbers and types of buildings within a 2-mile radius are already at their highest values, so addition of more buildings will not increase the risk.

TOTAL HAZARD PROBABILITY VALUE (sum of largest values for A through F): **22**
(maximum of 30)

Apply this value to Hazard Probability Table 2 to determine the Hazard Probability Level.

TABLE 2
HAZARD PROBABILITY

DESCRIPTION	LEVEL	HAZARD PROBABILITY VALUE
FREQUENT	A	27 or greater
PROBABLE	B	21 to 26
OCCASIONAL	C	15 to 20
REMOTE	D	8 to 14
IMPROBABLE	E	less than 8

*Apply Hazard Probability Level to Table 3.

PART III. RISK ASSESSMENT. The risk assessment value for this site is determined using the following table. Enter the results of the Hazard Probability and Hazard Severity values. If the Hazard Severity value is 0, a Hazard Probability is not calculated and a RAC score of 5 is assigned to the site.

TABLE 3
RISK ASSESSMENT

PROBABILITY LEVEL	FREQUENT A	PROBABLE B	OCCASIONAL C	REMOTE D	IMPROBABLE E
SEVERITY CATEGORY:					
CATASTROPHIC I	1	1	2	3	4
CRITICAL II	1	2	3	4	5
MARGINAL III	2	3	4	4	5
NEGLIGIBLE IV	3	4	4	5	5

RISK ASSESSMENT CODE (RAC)

RAC 1 High Risk – Highest priority for further action.
RAC 2 Serious Risk – Priority for further action.
RAC 3 Moderate Risk – Recommend further action.
RAC 4 Low Risk – Recommend further action.
RAC 5 Negligible Risk – No explosive related action necessary.

PART IV. NARRATIVE. Summarize the documented evidence that supports this risk assessment. If no documented evidence was available, explain all the assumptions that were made.

All the evidence supporting the risk assessment was found in the *Fort Devens Archive Search Report, May, 1995* and the *Ordnance, Ammunition and Explosives Sampling Action, Draft Sampling Action Report Maps, 29 December 1995.*

The ASR indicates that a wide variety of ordnance and chemical weapons were used on the installation; however, the specific locations of use were not identified in most cases. Only the ordnance found or known to be used on the range were considered in this risk assessment.

RAC scores for the Army CTT inventory were developed from documentation of historical use. Subsequent response actions may serve to reduce the explosive safety hazard, but will not change the RAC score.

RISK ASSESSMENT CODE WORKSHEETS
Range Complex 2

THE RISK ASSESSMENT CODE FOR ORDNANCE AND EXPLOSIVES (OE) SITES

Site Name	Range Complex 2	**Rater's Name**	Susie Brooks
Site Location	Fort Devens, MA	**Phone Number**	(865) 483-9870
Range Classification	Transferred	**Organization**	URS Group, Inc.
Date Completed	18 April 2003	**Score**	1

BACKGROUND:

These risk assessment procedures were developed by the U.S. Army Engineering and Support Center, Huntsville, Ordnance and Explosives Team (CEHNC-OE) to prioritize the response action(s) at formerly used defense sites. The procedures were developed in accordance with MIL-STD 882C and AR 385-10.

The Department of Defense (DoD) is adopting the procedures, as an interim DoD-wide standard, to provide a set of uniform procedures for assessing explosives safety risks at Defense Environmental Restoration Program sites.

Risk Assessment Code (RAC) scores developed using these procedures will be used by DoD for risk assessment at sites suspected to contain unexploded ordnance (UXO) or other explosive safety hazards.

The risk assessment should be based on the best available information resulting from record searches, reports of Explosive Ordnance Disposal (EOD) Detachment actions, field observations, interviews, and measurements. This information is used to assess the risk involved base on the *potential* explosives safety hazards identified at the site. The risk assessment is composed of two factors, hazard severity and hazard probability.

PROCEDURES

PART I. HAZARD SEVERITY. Hazard severity categories are defined to provide a qualitative measure of the worst credible event resulting from personnel exposure to various types and quantities of UXO.

TYPE OF ORDNANCE: (Circle all that apply)

A.	**Conventional ordnance and ammunition:**	**VALUE**
	Medium/large caliber (20mm and larger)	[10]
	Bombs, explosive	10
	Grenades, hand or rifle, explosive	[10]
	Landmine, explosive	[10]
	Rockets, guided missile, explosive	[10]
	Detonators, blasting caps, fuzes, boosters, bursters	[6]
	Bombs, practice (w/spotting charges)	6
	Grenades, practice (w/spotting charges)	[4]
	Landmine, practice (w/spotting charges)	[4]
	Small arms, complete round (.22 cal -.50 cal)	1
	Small arms, expended	[0]
	Practice ordnance (w/o spotting charges)	[0]
	Conventional ordnance and ammunition (largest single value)	**10**

What evidence do you have regarding conventional UXO?

As a result of a UXO sampling and removal action conducted in 1995, three sites were selected for further removal action. During the 1995 UXO investigation, various UXO were discovered on the surface and removed. Based on geophysical survey results, the sites included in this complex did not warrant further subsurface removal activities. However, it was assumed that the potential for subsurface UXO exists.

B. **Pyrotechnics (for munitions not described above):**	**VALUE**
Munition (containers) containing white phosphorus (WP) or other pyrophoric material (i.e., spontaneously flammable)	10
Munition containing a flame or incendiary material (i.e., Napalm, Triethylaluminum metal incendiaries)	6
Flares, signals, simulators, screening smokes (other than WP)	4
Pyrotechnics (select the single largest value)	**10**

What evidence do you have regarding pyrotechnics?

See evidence provided for item a.

C. **Bulk High Explosives (not an integral part of conventional ordnance; uncontainerized):**	**VALUE**
Primary or initiating explosives (lead styphnate, lead azide, nitroglycerin, mercury azide, mercury fulminate, tetracene, etc.)	10
Demolition charges	10
Secondary explosives (PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	8
Military dynamite	6
Less sensitive explosives (ammonium nitrate, Explosive D, etc.)	3
High explosives (select the single largest value)	**0**

What evidence do you have regarding bulk explosives?

No evidence was found indicating the use of bulk explosives.

D. **Bulk propellants (not an integral part of rockets, guided missiles, or other conventional ordnance; uncontainerized):**	**VALUE**
Solid or liquid propellants	6
Propellants	**0**

What evidence do you have regarding bulk propellants?

No evidence was found indicating the use of bulk propellants.

E. **Chemical Warfare Material (CWM) and Radiological Weapons:**	**VALUE**
Toxic chemical agents (choking, nerve, blood, blister)	25
War Gas Identification Sets	20
Radiological	15
Riot Control Agents (vomiting, tear)	5
Chemical and Radiological (select the single largest value)	**25**

What evidence do you have regarding chemical or radiological?

The ASR lists numerous chemical agents used on the installation from 1917 through the early 1960s. However, the locations of use were not given in most instances. During the site visit for the ASR, the site team discovered eleven 1-gal chemical landmines inside the eastern boundaries of Range 12 and Training Area 6 (HFA Investigation Sites 24 and 25). Due to the widespread use of a variety of chemical warfare materiels, others could also be present but were not factored into the risk assessment since their presence could not be confirmed. The overall score would not be affected by the additional items since the chemical landmines trigger the highest value for chemical warfare materiel.

TOTAL HAZARD SEVERITY VALUE (Sum of values A through E): **45** (maximum of 61)

Apply this value to Table 1 to determine Hazard Severity Category

TABLE 1:
HAZARD SEVERITY*

DESCRIPTION	CATEGORY	HAZARD SEVERITY VALUE
CATASTROPHIC	I	21 and/or greater
CRITICAL	II	10 to 20
MARGINAL	III	5 to 9
NEGLIGIBLE	IV	1 to 4
**NONE	V	0

* Apply Hazard Severity Category to Table 3

**If hazard severity value is 0, you do not need to complete Part II of this form. Proceed to Part III and use a RAC score of 5 to determine your appropriate action.

PART II. HAZARD PROBABILITY. The probability that a hazard has been, or will be, created due to the presence and other rated factors of UXO or explosive materials on a formerly used DoD site.

AREA, EXTENT, ACCESSIBILITY OF UXO AND OE HAZARDS (Circle all that apply)

A. Locations of UXO and OE hazards:

	VALUE
On the surface	5
Within tanks, pipes, vessels, or other confined areas	4
Inside walls, ceilings, or other building/structure	3
Subsurface	2
Location (select the single largest value)	**2**

What evidence do you have regarding the location of UXO and OE?

During the 1995 UXO investigation, various UXO were discovered on the surface and removed. Based on geophysical survey results, the sites included in this complex did not warrant further subsurface removal activities. However, it was assumed that the potential for subsurface UXO exists.

B. Distance to nearest inhabited location/structure likely to be at risk from the UXO or OE hazard (road, park, playground, building, etc.):

	VALUE
Less than 1,250 feet	5
1,250 feet to 0.5 mile	4
0.5 mile to 1.0 mile	3
1.0 mile to 2.0 Miles	2
Over 2 miles	1
Distance (select the single largest value)	**5**

What are the nearest inhabited structures/buildings?

The former installation is dense with structures as a result of the rapid development of the transferred BRAC property. There are a wide variety of structures, including commercial, recreational, and residential. The area is under continual development.

C. Number(s) of building(s) within a 2-mile radius measured from the UXO or OE hazard area, not the installation boundary:

	VALUE
26 and over	[5]
16 to 25	4
11 to 15	3
6 to 10	2
1 to 5	1
0	0
Number of buildings (select the single largest value)	**5**

Narrative:

The former installation is dense with structures as a result of the rapid development of the transferred BRAC property. The area is under continual development.

D. Types of Buildings (within a 2 mile radius):

	VALUE
Educational, child care, residential, hospitals hotels, commercial, shopping centers	[5]
Industrial, warehouse, etc.	4
Agricultural, forestry, etc.	3
Detention, correctional	2
No buildings	0
Types of buildings (select the single largest value)	**5**

Describe the types of buildings:

The former installation is adjacent to the town of Ayer, MA, which is densely populated. The town has all the typical variety of structures found in a small town, including commercial, residential, schools, hospitals, etc.

E. Accessibility to site refers to access by humans to ordnance and explosives. Use the following guidance:

	VALUE
No barrier nor security system	[5]
Barrier is incomplete (e.g., in disrepair or does not completely surround the site). Barrier is intended to deny egress from the site, as for a barbed wire fence for grazing.	4
A barrier (any kind of fence in good repair) but no separate means to control entry. Barrier is intended to deny access to the site.	3
Security guard, but no barrier	2
Isolated site	1
A 24-hour surveillance system (e.g., television monitoring or surveillance by guards or facility personnel continuously monitors and controls entry; or, an artificial or natural barrier (e.g., fence combined with a cliff) that completely surrounds the area; and, a means to control entry at all times through the gates or other entrances (e.g., an attendant, television monitors, locked entrances, or controlled roadway access to the area).	0
Accessibility (select the single largest value)	**5**

Describe the site accessibility:

The Devens BRAC office indicated that current owners may potentially have installed access controls, but the Devens BRAC office is not compiling this information. In the absence of data, the most conservative approach was taken and a value of 5 was selected for this category.

F. Site Dynamics. This deals with site conditions that are subject to change in the future, but may be stable at the present. Examples would be excessive soil erosion on beaches or streams and increasing land development that could reduce distances from the site to inhabited areas or otherwise increase accessibility.

	VALUE
Expected	5
None anticipated	0
Site Dynamics (select the single largest value)	**0**

Describe the site dynamics:

The Fort Devens area is anticipated to undergo continued land development. However, since the area already has a large number of buildings/residences, the addition will not change the overall dynamics of the site. The hazard probability values for numbers and types of buildings within a 2-mile radius are already at their highest values, so addition of more buildings will not increase the risk.

TOTAL HAZARD PROBABILITY VALUE (sum of largest values for A through F): **22**
(maximum of 30)

Apply this value to Hazard Probability Table 2 to determine the Hazard Probability Level.

TABLE 2
HAZARD PROBABILITY

DESCRIPTION	LEVEL	HAZARD PROBABILITY VALUE
FREQUENT	A	27 or greater
PROBABLE	B	21 to 26
OCCASIONAL	C	15 to 20
REMOTE	D	8 to 14
IMPROBABLE	E	less than 8

*Apply Hazard Probability Level to Table 3.

PART III. RISK ASSESSMENT. The risk assessment value for this site is determined using the following table. Enter the results of the Hazard Probability and Hazard Severity values. If the Hazard Severity value is 0, a Hazard Probability is not calculated and a RAC score of 5 is assigned to the site.

TABLE 3
RISK ASSESSMENT

PROBABILITY LEVEL		FREQUENT A	PROBABLE B	OCCASIONAL C	REMOTE D	IMPROBABLE E
SEVERITY CATEGORY:						
CATASTROPHIC	I	1	1	2	3	4
CRITICAL	II	1	2	3	4	5
MARGINAL	III	2	3	4	4	5
NEGLIGIBLE	IV	3	4	4	5	5

RISK ASSESSMENT CODE (RAC)

RAC 1 High Risk – Highest priority for further action.
RAC 2 Serious Risk – Priority for further action.
RAC 3 Moderate Risk – Recommend further action.
RAC 4 Low Risk – Recommend further action.
RAC 5 Negligible Risk – No explosive related action necessary.

PART IV. NARRATIVE. Summarize the documented evidence that supports this risk assessment. If no documented evidence was available, explain all the assumptions that were made.

All the evidence supporting the risk assessment was found in the *Fort Devens Archive Search Report,* May, 1995; the *Ordnance, Ammunition and Explosives Sampling Action, Draft Sampling Action Report Maps,* 29 December 1995; and the *Devens RFTA, Fort Devens, Massachusetts, Removal Action. Report,* 10 October 1996.

The ASR indicates that a wide variety of ordnance and chemical weapons were used on the installation; however, the specific locations of use were not identified in most cases. Only the ordnance found or known to be used on the range were considered in this risk assessment.

RAC scores for the Army CTT inventory were developed from documentation of historical use. Subsequent response actions may serve to reduce the explosive safety hazard, but will not change the RAC score.

RISK ASSESSMENT CODE WORKSHEETS
Range Complex 3

THE RISK ASSESSMENT CODE FOR ORDNANCE AND EXPLOSIVES (OE) SITES

Site Name	Range Complex 3	**Rater's Name**	Susie Brooks
Site Location	Fort Devens, MA	**Phone Number**	(865) 483-9870
Range Classification	Transferred	**Organization**	URS Group, Inc.
Date Completed	18 April 2003	**Score**	**4**

BACKGROUND:

These risk assessment procedures were developed by the U.S. Army Engineering and Support Center, Huntsville, Ordnance and Explosives Team (CEHNC-OE) to prioritize the response action(s) at formerly used defense sites. The procedures were developed in accordance with MIL-STD 882C and AR 385-10.

The Department of Defense (DoD) is adopting the procedures, as an interim DoD-wide standard, to provide a set of uniform procedures for assessing explosives safety risks at Defense Environmental Restoration Program sites.

Risk Assessment Code (RAC) scores developed using these procedures will be used by DoD for risk assessment at sites suspected to contain unexploded ordnance (UXO) or other explosive safety hazards.

The risk assessment should be based on the best available information resulting from record searches, reports of Explosive Ordnance Disposal (EOD) Detachment actions, field observations, interviews, and measurements. This information is used to assess the risk involved base on the *potential* explosives safety hazards identified at the site. The risk assessment is composed of two factors, hazard severity and hazard probability.

PROCEDURES

PART I. HAZARD SEVERITY. Hazard severity categories are defined to provide a qualitative measure of the worst credible event resulting from personnel exposure to various types and quantities of UXO.

TYPE OF ORDNANCE: (Circle all that apply)

A.	**Conventional ordnance and ammunition:**	**VALUE**
	Medium/large caliber (20mm and larger)	10
	Bombs, explosive	10
	Grenades, hand or rifle, explosive	10
	Landmine, explosive	10
	Rockets, guided missile, explosive	10
	Detonators, blasting caps, fuzes, boosters, bursters	6
	Bombs, practice (w/spotting charges)	6
	Grenades, practice (w/spotting charges)	4
	Landmine, practice (w/spotting charges)	4
	Small arms, complete round (.22 cal -.50 cal)	1
	Small arms, expended	0
	Practice ordnance (w/o spotting charges)	0
	Conventional ordnance and ammunition (largest single value)	**0**

What evidence do you have regarding conventional UXO?

After review of historic documentation and previous site investigations, the property comprising Complex 3 was not included in the 1995 – 1996 UXO sampling and removal projects. The UXO potentially present as indicated on this worksheet is based on the known historical use of the small arms ranges and training areas that were formerly located within this range complex, as documented in the ASR.

B. **Pyrotechnics (for munitions not described above):**	**VALUE**
Munition (containers) containing white phosphorus (WP) or other pyrophoric material (i.e., spontaneously flammable)	10
Munition containing a flame or incendiary material (i.e., Napalm, Triethylaluminum metal incendiaries)	6
Flares, signals, simulators, screening smokes (other than WP)	4
Pyrotechnics (select the single largest value)	**4**

What evidence do you have regarding pyrotechnics?

See evidence provided for item A. Former training areas (located within the range complex) were authorized for the use of flares and simulators.

C. **Bulk High Explosives (not an integral part of conventional ordnance; uncontainerized):**	**VALUE**
Primary or initiating explosives (lead styphnate, lead azide, nitroglycerin, mercury azide, mercury fulminate, tetracene, etc.)	10
Demolition charges	10
Secondary explosives (PETN, Compositions A, B, C, Tetryl, TNT, RDX, HMX, HBX, Black Powder, etc.)	8
Military dynamite	6
Less sensitive explosives (ammonium nitrate, Explosive D, etc.)	3
High explosives (select the single largest value)	**0**

What evidence do you have regarding bulk explosives?

No evidence was found indicating the use of bulk explosives.

D. **Bulk propellants (not an integral part of rockets, guided missiles, or other conventional ordnance; uncontainerized):**	**VALUE**
Solid or liquid propellants	6
Propellants	**0**

What evidence do you have regarding bulk propellants?

No evidence was found indicating the use of bulk propellants.

E. **Chemical Warfare Material (CWM) and Radiological Weapons:**	**VALUE**
Toxic chemical agents (choking, nerve, blood, blister)	25
War Gas Identification Sets	20
Radiological	15
Riot Control Agents (vomiting, tear)	5
Chemical and Radiological (select the single largest value)	**0**

What evidence do you have regarding chemical or radiological?

The ASR lists numerous chemical agents used on the installation from 1917 through the early 1960s. However, the locations of use were not given in most instances. Since their use could not be confirmed on the land area encompassed by Range 11, they were not factored into this risk assessment.

TOTAL HAZARD SEVERITY VALUE (Sum of values A through E): 4 (maximum of 61)

Apply this value to Table 1 to determine Hazard Severity Category

TABLE 1:
HAZARD SEVERITY*

DESCRIPTION	CATEGORY	HAZARD SEVERITY VALUE
CATASTROPHIC	I	21 and/or greater
CRITICAL	II	10 to 20
MARGINAL	III	5 to 9
NEGLIGIBLE	IV	1 to 4
**NONE	V	0

* Apply Hazard Severity Category to Table 3
**If hazard severity value is 0, you do not need to complete Part II of this form. Proceed to Part III and use a RAC score of 5 to determine your appropriate action.

PART II. HAZARD PROBABILITY. The probability that a hazard has been, or will be, created due to the presence and other rated factors of UXO or explosive materials on a formerly used DoD site.

AREA, EXTENT, ACCESSIBILITY OF UXO AND OE HAZARDS (Circle all that apply)

A.	**Locations of UXO and OE hazards:**	**VALUE**
	On the surface	5
	Within tanks, pipes, vessels, or other confined areas	4
	Inside walls, ceilings, or other building/structure	3
	Subsurface	2
	Location (select the single largest value)	**2**

What evidence do you have regarding the location of UXO and OE?
Since the properties comprising Complex 3 were not included in the 1995 – 1996 sampling and removal projects, it was assumed that there is little potential for surface UXO.

B.	**Distance to nearest inhabited location/structure likely to be at risk from the UXO or OE hazard (road, park, playground, building, etc.):**	**VALUE**
	Less than 1,250 feet	5
	1,250 feet to 0.5 mile	4
	0.5 mile to 1.0 mile	3
	1.0 mile to 2.0 Miles	2
	Over 2 miles	1
	Distance (select the single largest value)	**5**

What are the nearest inhabited structures/buildings?
The former installation is dense with structures as a result of the rapid development of the transferred BRAC property. There are a wide variety of structures, including commercial, recreational, and residential. The area is under continual development.

C. **Number(s) of building(s) within a 2-mile radius measured from the UXO or OE hazard area, not the installation boundary:**

	VALUE
26 and over	5
16 to 25	4
11 to 15	3
6 to 10	2
1 to 5	1
0	0
Number of buildings (select the single largest value)	**5**

Narrative:

The former installation is dense with structures as a result of the rapid development of the transferred BRAC property. The area is under continual development.

D. **Types of Buildings (within a 2 mile radius):**

	VALUE
Educational, child care, residential, hospitals hotels, commercial, shopping centers	5
Industrial, warehouse, etc.	4
Agricultural, forestry, etc.	3
Detention, correctional	2
No buildings	0
Types of buildings (select the single largest value)	**5**

Describe the types of buildings:

The former installation is adjacent to the town of Ayer, MA, which is densely populated. The town has all the typical variety of structures found in a small town, including commercial, residential, schools, hospitals, etc.

E. **Accessibility to site refers to access by humans to ordnance and explosives. Use the following guidance:**

	VALUE
No barrier nor security system	5
Barrier is incomplete (e.g., in disrepair or does not completely surround the site). Barrier is intended to deny egress from the site, as for a barbed wire fence for grazing.	4
A barrier (any kind of fence in good repair) but no separate means to control entry. Barrier is intended to deny access to the site.	3
Security guard, but no barrier	2
Isolated site	1
A 24-hour surveillance system (e.g., television monitoring or surveillance by guards or facility personnel continuously monitors and controls entry; or, an artificial or natural barrier (e.g., fence combined with a cliff) that completely surrounds the area; and, a means to control entry at all times through the gates or other entrances (e.g., an attendant, television monitors, locked entrances, or controlled roadway access to the area).	0
Accessibility (select the single largest value)	**5**

Describe the site accessibility:

The Devens BRAC office indicated that current owners may potentially have installed access controls, but the Devens BRAC office is not compiling this information. In the absence of data, the most conservative approach was taken and a value of 5 was selected for this category.

F. **Site Dynamics. This deals with site conditions that are subject to change in the future, but may be stable at the present. Examples would be excessive soil erosion on beaches or streams and increasing land development that could reduce distances from the site to inhabited areas or otherwise increase accessibility.**

	VALUE
Expected	5
None anticipated	0
Site Dynamics (select the single largest value)	**0**

Describe the site dynamics:

The Fort Devens area is anticipated to undergo continued land development. However, since the area already has a large number of buildings/residences, the addition will not change the overall dynamics of the site. The hazard probability values for numbers and types of buildings within a 2-mile radius are already at their highest values, so addition of more buildings will not increase the risk.

TOTAL HAZARD PROBABILITY VALUE (sum of largest values for A through F): **22**
(maximum of 30)

Apply this value to Hazard Probability Table 2 to determine the Hazard Probability Level.

TABLE 2
HAZARD PROBABILITY

DESCRIPTION	LEVEL	HAZARD PROBABILITY VALUE
FREQUENT	A	27 or greater
PROBABLE	B	21 to 26
OCCASIONAL	C	15 to 20
REMOTE	D	8 to 14
IMPROBABLE	E	less than 8

*Apply Hazard Probability Level to Table 3.

PART III. RISK ASSESSMENT. The risk assessment value for this site is determined using the following table. Enter the results of the Hazard Probability and Hazard Severity values. If the Hazard Severity value is 0, a Hazard Probability is not calculated and a RAC score of 5 is assigned to the site.

TABLE 3
RISK ASSESSMENT

PROBABILITY LEVEL		FREQUENT A	PROBABLE B	OCCASIONAL C	REMOTE D	IMPROBABLE E
SEVERITY CATEGORY:						
CATASTROPHIC	I	1	1	2	3	4
CRITICAL	II	1	2	3	4	5
MARGINAL	III	2	3	4	4	5
NEGLIGIBLE	IV	3	4	4	5	5

RISK ASSESSMENT CODE (RAC)

RAC 1 High Risk – Highest priority for further action.
RAC 2 Serious Risk – Priority for further action.
RAC 3 Moderate Risk – Recommend further action.
RAC 4 Low Risk – Recommend further action.
RAC 5 Negligible Risk – No explosive related action necessary.

PART IV. NARRATIVE. Summarize the documented evidence that supports this risk assessment. If no documented evidence was available, explain all the assumptions that were made.

All the evidence supporting the risk assessment was found in the *Fort Devens Archive Search Report, May,* 1995; the *Ordnance, Ammunition and Explosives Sampling Action, Draft Sampling Action Report Maps,* 29 December 1995; and the *Devens RFTA, Fort Devens, Massachusetts, Removal Action Report,* 10 October 1996.

The ASR indicates that a wide variety of ordnance and chemical weapons were used on the installation; however, the specific locations of use were not identified in most cases. Only the ordnance known to be used on the small arms ranges and training areas were considered in this risk assessment.

RAC scores for the Army CTT inventory were developed from documentation of historical use. Subsequent response actions may serve to reduce the explosive safety hazard, but will not change the RAC score.

H. DIGITAL FILES

A compact disc that contains the CTT inventory electronic GIS and map files is included in this section. The ARID files have been provided to AEC for uploading.

I. DOCUMENT LOG

Reports

USACE, St. Louis District. *Ordnance, Ammunition and Explosives Archives Search Report Findings for Fort Devens, Ayer, Massachusetts.* May 1995.

USACE, St. Louis District. *Ordnance, Ammunition and Explosives Archives Search Report Conclusions and Recommendations for Fort Devens, Ayer, Massachusetts.* May 1995.

Human Factors Applications, Inc., *Draft, Devens RFTA Ft. Devens, Massachusetts, Removal Action Report*, 10 Oct 1996.

USACE, *Environmental Condition of Property, Fort Devens, Department of the Interior Parcel (U.S. Fish and Wildlife Service), Fort Devens, Massachusetts,* December 1998.

USACE, *Environmental Condition of Property, Fort Devens Federal Bureau of Prisons, Fort Devens, Massachusetts*, November 1996.

USACE, *Environmental Condition of Property, Fort Devens Verbeck Housing Area, Fort Devens, Massachusetts*, September 1996.

U.S. Environmental Protection Agency, Fort Devens Site, Devens, Massachusetts, *A Superfund Redevelopment Success*, April 1998.

Maps

USACE, St. Louis District. *Ordnance, Ammunition and Explosives Archives Search Report Maps for Fort Devens, Ayer, Massachusetts.* May 1995.

Human Factors Applications, Inc. *Ordnance, Ammunition and Explosive Sampling Action, Fort Devens, Massachusetts. Draft Sampling Action Report, Volume II, Area Maps.* Scale: 1"=200'. December 1995.

USACE, Huntsville Division. *Draft Sampling Action Report, Volume II: Area Maps*, Ordnance, Ammunition, & Explosive Sampling Action, Fort Devens, Massachusetts. 5 October 1995.

R&K Engineering, Inc. *Devens Reserve Forces Training Area, Master Plan, Existing Conditions Maps, General Reservation Map.* June 1999. Sheet No. 2 of 32.

Range Control, Fort Devens, Mass. *Ranges – Training Areas.* 2 January 1961. No. RC-1.

Office of the Post Engineer, Fort Devens, Mass. *Key Plan, Target Range Area.* 1 October 1948. Plan No. 6101-QMC-31.

Construction Division, Office of the Constructing Quartermaster, Fort Devens, Mass. *Key Plan, Target Range Area.* February 26, 1942. Plan No. 6101-QMC-31.

Department of the Army, New England Division, Corps of Engineers. *Master Plan, Basic Information Maps, Reservation Plan.* September 1984. Drawing No. 18-02-04. Sheet No. 3 of 34.

United States Department of the Interior Fish and Wildlife Service. *Oxbow National Wildlife Refuge, Fort Devens Military Reservation, Transfer Tracts (1,a,b,c,-R,-R1,d,-R).* November 6, 1996.

Interviews

Hace 2003. Telephone conservation with Ms. Rochele Hace, USACE, St. Louis, April 14.

J. NOTES

The stewardship table is included in this section. The table shows the natural and cultural resources present at the range or UXO-DMM-MC site.

Actual range fans were not found for any of the ranges identified in this inventory. In the absence of these fans, SDZ dimensions provided in the *Army Range Inventory Data Collector Instructions*, Appendix E Surface Danger Zone Descriptions (September 2001), were used to estimate range boundaries in accordance with inventory procedure. Since the SDZs were used to estimate range boundaries and locations, the acreage data provided in this document are considered to be conservative estimates that most likely exceed the actual range acreage.

The RAC scores for Little Mirror Lake and Range Complexes 1 and 2 are based on the results of a UXO sampling effort conducted on portions of the BRAC property in 1995. The RAC score for Range Complex 3 is based on historical use as documented in the ASR.

The properties that formerly comprised Fort Devens were initially transferred to either federal entities or the state's redevelopment authority (MassDev). MassDev properties may have since been purchased or leased by other entities.

Of the seven DSERTS sites identified for Fort Devens, only FTDV-017 and FTDV-060 are located within the boundaries of BRAC property. The remaining sites are located within the boundaries of the South Post (Devens RFTA), which is an active USARC installation. Little Mirror Lake qualifies for this range inventory because it is located within Fort Devens BRAC property and was assigned a BRAC UXO Flag of XU. Since the site has been closed out with regulatory agreement, it is classified as "Other" and was not assigned an RMIS ID. FTDV-060 included the 30 sites addressed by the sampling and clearance activities conducted by HFA in 1995 and 1996, and is also classified as "Other" due to closure with regulatory agreement.

Stewardship Table

Natural and Cultural Resources:

INSTALLATION	RANGE/SITE NAME	FFID	SPECIAL STATUS SPECIES	CULTURAL RESOURCES
DEVENS RFTA	LITTLE MIRROR LAKE	MA210420270	The ASR for this site reported that no federally listed threatened or endangered species are known to permanently occupy Fort Devens. However, two federally endangered species, the bald eagle (Haliaeetus leucocephalus) and peregrine falcon (Falco peregrinus), have been observed feeding and resting within the installation during migration. Two animal species and one plant species that are candidates for federal listing as endangered have been documented to occur on the installation. These are the Blanding's turtle (Emydoidea blandingii), the northern goshawk (Accipiter gentilis), and the northern blazing star (Liatris borealis). A long list of state endangered, threatened, and species of special concern exist in the vicinity of Fort Devens and is provided in the ASR.	The UXO sampling project conducted in 1995 identified two archaeological sites within the BRAC parcel.

Stewardship Table

Natural and Cultural Resources:

INSTALLATION	RANGE/SITE NAME	FFID	SPECIAL STATUS SPECIES	CULTURAL RESOURCES
DEVENS RFTA	RANGE COMPLEX 1	MA210420270	The ASR for this site reported that no federally listed threatened or endangered species are known to permanently occupy Fort Devens. However, two federally endangered species, the bald eagle (Haliaeetus leucocephalus) and peregrine falcon (Falco peregrinus), have been observed feeding and resting within the installation during migration. Two animal species and one plant species that are candidates for federal listing as endangered have been documented to occur on the installation. These are the Blanding's turtle (Emydoidea blandingii), the northern goshawk (Accipiter gentilis), and the northern blazing star (Liatris borealis). A long list of state endangered, threatened, and species of special concern exist in the vicinity of Fort Devens and is provided in the ASR.	The UXO sampling project conducted in 1995 identified two archaeological sites within the BRAC parcel.

Stewardship Table

Natural and Cultural Resources:

INSTALLATION	RANGE/SITE NAME	FFID	SPECIAL STATUS SPECIES	CULTURAL RESOURCES
DEVENS RFTA	RANGE COMPLEX 2	MA210420270	The ASR for this site reported that no federally listed threatened or endangered species are known to permanently occupy Fort Devens. However, two federally endangered species, the bald eagle (Haliaeetus leucocephalus) and peregrine falcon (Falco peregrinus), have been observed feeding and resting within the installation during migration. Two animal species and one plant species that are candidates for federal listing as endangered have been documented to occur on the installation. These are the Blanding's turtle (Emydoidea blandingii), the northern goshawk (Accipiter gentilis), and the northern blazing star (Liatris borealis). A long list of state endangered, threatened, and species of special concern exist in the vicinity of Fort Devens and is provided in the ASR.	The UXO sampling project conducted in 1995 identified two archaeological sites within the BRAC parcel.

Stewardship Table

Natural and Cultural Resources:

INSTALLATION	RANGE/SITE NAME	FFID	SPECIAL STATUS SPECIES	CULTURAL RESOURCES
DEVENS RFTA	RANGE COMPLEX 3	MA210420270	The ASR for this site reported that no federally listed threatened or endangered species are known to permanently occupy Fort Devens. However, two federally endangered species, the bald eagle (Haliaeetus leucocephalus) and peregrine falcon (Falco peregrinus), have been observed feeding and resting within the installation during migration. Two animal species and one plant species that are candidates for federal listing as endangered have been documented to occur on the installation. These are the Blanding's turtle (Emydoidea blandingii), the northern goshawk (Accipiter gentilis), and the northern blazing star (Liatris borealis). A long list of state endangered, threatened, and species of special concern exist in the vicinity of Fort Devens and is provided in the ASR.	The UXO sampling project conducted in 1995 identified two archaeological sites within the BRAC parcel.