FINAL REPORT

MILITARY MUNITIONS RESPONSE PROGRAM
REMEDIAL INVESTIGATION/FEASIBILITY STUDY

FORMER CAMP MAXEY ARTILLERY RANGES
Paris, Texas

Contract #: W912DY-04-D-0009
Task Order #: 0010
FUDS Project No. K06TX030501

Prepared For:

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Huntsville, Alabama 35816-1822

Geographical District:

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April 2014

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ACRONYMS

°F	Degrees Fahrenheit
%	percent
amsl	above mean sea level
ARARs	Applicable or Relevant and Appropriate Requirements
ASR	Archive Search Report
ATV	All-Terrain Vehicle
bgs	below ground surface
CEHNC	Corps of Engineers – Huntsville Center
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CHE	Chemical Warfare Materiel Hazard Evaluation
cm^2	centimeters squared
COC	Contaminant of Concern
CSM	Conceptual Site Model
CWM	Chemical Weapons Materiel
DERP	Defense Environmental Restoration Program
DGM	Digital Geophysical Mapping
DMM	Discarded Military Munitions
DoD	Department of Defense
DQO	Data Quality Objective
EcoSSL	Ecological Soil Screening Level
EE/CA	Engineering Evaluation and Cost Analysis
EHE	Explosive Hazard Evaluation
EM	Engineer Manual
EM CX	Environmental and Munitions Center of Expertise
EOD	Explosives and Ordnance Disposal
EOTI/ARCADIS	Explosive Ordnance Technologies, Inc. and ARCADIS U.S., Inc.
EP	Engineer Pamphlet
ER	Engineer Regulation
ERA	Ecological Risk Assessment
ESB	Ecological Screening Benchmark
ESP	Explosives Site Plan
FCR	Field Change Request
FS	Feasibility Study

FUDS	Formerly Used Defense Site
GP	Guided Projectile
GPS	Global Positioning System
GSV	Geophysical Systems Verification
HA	Hazard Assessment
HE	High-Explosive
HEAT	High-Explosive Anti-Tank
HEI	High-Explosive Incendiary
HFA	Human Factors Applications, Inc.
HHE	Health Hazard Evaluation
HHRA	Human Health Risk Assessment
HQ	Hazard Quotient
IGD	Interim Guidance Document
IS	Incremental Sampling
IVS	Instrument Verification Strip
lbs	pounds
LANL	Los Alamos National Laboratory
LTM	Long Term Management
LUC	Land Use Control
MC	Munitions Constituents
MD	Munitions Debris
MEC	Munitions and Explosives of Concern
MIS	Management Information System
mg/kg	milligrams per kilogram
mm	millimeter
MMRP	Military Munitions Response Program
MPPEH	Material Potentially Presenting an Explosive Hazard
MQL	Method Quantitation Limits
MRS	Munitions Response Site
MRSPP	Munitions Response Site Prioritization Protocol
MS/MSD	Matrix spike / Matrix Spike Duplicate
NA	Not Available
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
ND	Non-detect
NTCRA	Non-Time Critical Removal Action
OB/OD	Open Burn/Open Detonation
OE	Ordnance and Explosives

OEW	Ordnance and Explosive Waste
PAL	Project Action Limit
PCL	Protective Concentration Limit
PES	Parsons Engineering Science, Inc.
PP	Proposed Plan
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
RAC	Risk Assessment Code
RAO	Remedial Action Objective
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
ROE	Right-of-Entry
SLERA	Screening Level Ecological Risk Assessment
SU	Sampling Unit
SUXOS	Senior Unexploded Ordnance Supervisor
TAC	Texas Annotated Code
TAL	Target Analyte List
TBC	To Be Considered
TCEQ	Texas Commission of Environmental Quality
TCL	Target Compound List
TCLP	Toxicity Characteristic Leaching Procedure
TCRA	Time Critical Removal Action
TPP	Technical Project Planning
TPWD	Texas Parks and Wildlife Department
TRRP	Texas Risk Reduction Program
TX	Texas
UCL	Upper Confidence Limit
U.S.	United States
USACE	United States Army Corps of Engineers
USAE	USA Environmental, Inc.
USAEC	United States Army Environmental Command
USAESCH	United States Army Engineering Support Center, Huntsville
USC	United States Code
USEPA	United States Environmental Protection Agency
UXB	UXB International, Inc.
UXO	Unexploded Ordnance

UXOQCS	Unexploded Ordnance Quality Control Specialist
UXOSO	Unexploded Ordnance Safety Officer
WMA	Wildlife Management Area

ES 1. EXECUTIVE SUMMARY

This Remedial Investigation (RI) /Feasibility Study (FS) Report has been prepared on behalf of the United States (U.S.) Army Corps of Engineers (USACE) to further remedial activities under the Military Munitions Response Program (MMRP) at the Former Camp Maxey in Paris Artillery Ranges, Texas (TX) (hereafter referred to as Former Camp Maxey). By completing the RI and FS, the USACE are in compliance with the Defense Environmental Restoration Program (DERP) statute (10 USC 2701 et seq.) which requires the MMRP activities be carried out subject to and consistent with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as amended (42 USC § 9601 et seq.,), and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This RI/FS Report has been prepared in accordance with the U.S. Environmental Protection Agency (USEPA) *Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA* (USEPA, 1988) and the *Munitions Response RI/Feasibility Study (FS) Guidance* [USACE and United States Army Environmental Command (USAEC), 2009d]. All work was conducted in accordance with procedures developed in the *Final Work Plan* (EOTI, 2013), U.S. Army Engineering & Support Center (USAESCH), USACE, Department of the Army, and DoD requirements regarding personnel, equipment, and procedures.

ES 1.1 OBJECTIVE

The objective of the RI is to characterize the nature and extent of MEC and MC at the Former Camp Maxey meeting the requirements of ER 200-3-1 and the Environmental and Munitions Center of Expertise (EM CX) Interim Guidance 06-04. The purpose of the FS is to identify, develop, and evaluate remedial alternative(s) that mitigate, to acceptable levels, potential risks to human and ecological receptors for current and reasonably anticipated future land use at the Former Camp Maxey.

ES 1.2 REMEDIAL INVESTIGATION FIELD WORK SUMMARY

ES 1.2.1 A total 18 MEC items and numerous MD were identified during the RI. Of the MEC, 15 items were found on the ground surface and three were found in the subsurface at depths of no more than 12 inches. In addition, MEC and MD have historically been found during previous investigations. MEC found during the RI are listed in Table ES-1.

ES 1.2.2 Surface soil samples were collected via the incremental sampling method (see Section 3.3.1 for details). Forty-four (44) of the 47 surface soil samples, plus QC samples in the form of triplicates, were collected from sampling units (SUs) where UXO was found or were designated as medium/high MD density grids. An additional three (3) surface soil samples were collected at historical locations where prior MEC investigations and removals occurred but no MC sampling was performed. Eight surface soil background soil samples were collected. Lead and magnesium were detected at levels above Project Action Limits (PALs) in surface soil.

ES 1.2.3 Discrete subsurface soil samples were collected from SUs in which surface soil sample results exceeded the PALs established in the Work Plan. A total of 120 subsurface soil samples were collected, plus QC samples in the form of duplicates. Ten discrete subsurface soil samples were collected from the same eight SUs used for surface soil background.

Table ES-1: MEC Finds During RI

Location (Grid or Transect)	UXO Nomenclature	Depth (inches)
Eastern Range Area		
E22A3	37mm APHE	Found on transect during surface clearance activities prior to geophysical operations.
Western Range Area		
W38A2	76mm APHE	Found on transect during surface clearance activities prior to geophysical operations.
W35A2	76mm APHE	Found on transect during surface clearance activities prior to geophysical operations.
W20A2	76mm APHE	Found on transect during surface clearance activities prior to geophysical operations.
W18A2	76mm APHE	Found on transect during geophysical operations.
W27A2	76mm APHE	Found on transect during surface clearance activities prior to geophysical operations.
W27A2	76mm APHE	Found on transect during surface clearance activities prior to geophysical operations.
W29A2	76mm APHE	Found on transect during geophysical operations.
W44A2	2.36 Rocket Motor with Fuze	Found on transect during surface clearance activities prior to geophysical operations.
W35A2	76mm APHE	Found on transect during surface clearance activities prior to geophysical operations.
W45A2	105mm Smoke Canister	Found on transect during surface clearance activities prior to geophysical operations.
W35A2	76mm APHE	Found on transect during surface clearance activities prior to geophysical operations.
W30A2	76mm APHE	Found on transect during surface clearance activities prior to geophysical operations.
W38A2	76mm APHE	Found on transect during surface clearance activities prior to geophysical operations.
W27A2G1	155mm HE	4

W24A2G1	76 mm APHE	12
W31A2G1	76 mm APHE	8
Grenade Training Area		
G16A	2.36 Rocket	Found on transect during surface clearance activities prior to geophysical operations.

ES 1.3 HUMAN HEALTH AND ECOLOGICAL RISK ASSESSMENT RESULTS

The results of this baseline risk assessment demonstrate that adverse health effects from human and ecological exposure to MC in soil at the Former Camp Maxey are not expected, and no further investigation on the basis of potential human health or ecological risk is warranted. Therefore, MC remedial alternatives are not evaluated within the FS.

ES 1.4 CONCEPTUAL SITE MODEL, MUNITIONS RESPONSE SITE PRIORITIZATION PROTOCOL, AND MUNITIONS AND EXPLOSIVES OF CONCERN HAZARD ASSESSMENT RESULTS

ES.1.4.1Based on the results of the RI fieldwork and review of existing data from previous investigations, it is recommended that 12 separate MRSs be delineated from the original Former Camp Maxey MRS. Of these 12 MRSs, eight are addressed in the FS to develop and evaluate remedial alternatives and four MRSs require additional investigation to adequately characterize the nature and extent of MEC potentially at the site. The four MRSs requiring additional investigation are not addressed further in the FS.

ES.1.4.2The following is a list of the delineated MRSs which are identified as either being addressed in the FS or needing further investigation.

1. Western Range Area A (Further Investigation)
2. Western Range Area B (Feasibility Study)
3. Western Range Area C (Feasibility Study)
4. Western Range Area D (Feasibility Study)
5. Western Range Area E (Further Investigation)
6. Eastern Range Area A (Feasibility Study)
7. Eastern Range Area B (Feasibility Study)
8. Eastern Range Area C (Feasibility Study)
9. Grenade Range Area (Feasibility Study)
10. Cave Training Area (Further Investigation)
11. Mine and Booby Trap Training Area (Feasibility Study)
12. Bivouac Area (Further Investigation)

The following areas within the Former Camp Maxey MRS were not investigated as part of the RI and are not addressed in the FS.

1. Pat Mayse Lake (Not included in project scope. Further investigation required.)
2. Texas National Guard (Not Formerly Used Defense Sites (FUDS) program eligible.)

The MEC pathway analysis for the Former Camp Maxey, shows that there are complete and potentially complete pathways for all human and ecological receptors of MEC at each of the 12 MRSs above based on the results of the RI field work, previous investigations, and existing data gaps. This includes receptors for handle/treads underfoot contact (surface), as well as work that may be conducted on the ground surface. Complete and potentially complete exposure pathways also exist in the subsurface soil for human receptors, such as outdoor site workers who may perform intrusive work and recreational visitors who may visit the site and disturb subsurface soil. The subsurface pathway is also complete for biota that may nest or burrow at the MRS. See the figures in Section 5 for details concerning specific pathways for each recommended MRS.

Based on sampling data, a HHRA and SLERA were conducted (presented in Section 6). The results of the HHRA and SLERA demonstrate that no COCs were identified for either at the site. As such, the exposure pathways are all incomplete for human receptors of MC. Figures in Section 5 illustrate the incomplete pathways to human and ecological receptors for the entire Former Camp Maxey.

Munitions Response Site Prioritization Protocols (MRSPPs) and Munitions and Explosives of Concerns Hazard Assessments (MEC HAs) were developed as applicable for the revised MRSs. MEC HA scores were only developed for sites where MEC has been found historically and/or during RI fieldwork. Results are shown below (details concerning MRSPP and MEC HA scoring are included in Section 6.1).

Table ES-2: MRSPP Scores

MRS	EHE Rating	CHE Rating	HHE Rating	MRS Priority or Alternative Rating
Western Range Area A	D	No Known or Suspected	Evaluation Pending	5
Western Range Area B	D		No Known or Suspected	5
Western Range Area C	D		No Known or Suspected	5
Western Range Area D	C		No Known or Suspected	4
Western Range Area E	C		Evaluation Pending	4
Eastern Range Area A	B		No Known or Suspected	3
Eastern Range Area B	C		No Known or Suspected	4
Eastern Range Area C	C		No Known or Suspected	4
Grenade Range Area	C		No Known or Suspected	4
Cave Training Area	F		Evaluation Pending	7
Mine and Booby Trap Training Area	E		No Known or Suspected	6
Bivouac Area	B		Evaluation Pending	3

Note: A MRSPP score of 1 indicates the highest priority and 8 the lowest.

Table ES-3: Baseline MEC HA Scores

MRS	MEC HA Score	Hazard Level
Western Range Area D	920	1
Eastern Range Area A	950	1
Eastern Range Area B	735	2
Eastern Range Area C	760	2
Grenade Range Area	920	1

Note: A MEC HA score of 1 indicates the highest potential risk and 4 indicates the lowest.

ES 1.5 FEASIBILITY STUDY

The following remedial alternatives were developed and analyzed as part of the FS to offer a range of remedial approaches as required by CERCLA guidance. Only those MRS determined to be adequately characterized following the RI were evaluated in the FS.

Table ES-4: Remedial Alternatives Evaluated

MRS	Alternatives
Western Range Area B	1. No Action 2. LUCs 3. LUCs; 100 percent surface clearance 4. Unlimited Use/Access (100 percent subsurface clearance to a depth of 24 inches)
Western Range Area C	1. No Action 2. LUCs; Focused surface clearance for frequented public use areas (i.e. trail, dirt roads, picnic areas, camp grounds, shorelines) 3. LUCs; 100 percent surface clearance and focused 12 inch subsurface clearance for frequented public use areas (i.e. trail, dirt roads, picnic areas, camp grounds, shorelines) 4. Unlimited Use/Access (100 percent subsurface clearance to a depth of 24 inches)
Western Range Area D	1. No Action 2. LUCs; 100 percent surface clearance 3. LUCs; Focused surface and 12 inch subsurface clearance for frequented public use areas (i.e. trail, dirt roads, picnic areas, camp grounds, shorelines) 4. Unlimited Use/Access (100 percent subsurface clearance to a depth of 24 inches)
Eastern Range Area A	1. No Action 2. LUCs; 100 percent surface clearance 3. LUCs; Focused surface and 12 inch subsurface clearance for frequented public use areas (i.e. trails, dirt roads, picnic areas, camp grounds, beaches outside of previously cleared areas) 4. Unlimited Use/Access (100 percent subsurface clearance to a depth of 12 inches)
Eastern Range Area B	1. No Action 2. LUCs; Focused surface clearance for frequented public use areas (i.e. trails, dirt roads, picnic areas, camp grounds, beaches outside of previously cleared areas) 3. LUCs; 100 percent surface clearance and focused 12 inch subsurface clearance for frequented public use areas (i.e. trails, dirt roads, picnic areas, camp grounds, beaches outside of previously cleared areas) 4. Unlimited Use/Access (100 percent subsurface clearance to a depth of 12 inches)
Eastern Range Area C	1. No Action 2. LUCs 3. LUCs; Focused surface clearance for frequented public use areas (i.e. trails, picnic areas, shorelines) where only surface activities are expected 4. LUCS; 100 percent surface clearance 5. Unlimited Use/Access (100 percent subsurface clearance to a depth of 12 inches)

MRS	Alternatives
Grenade Range Area	1. No Action 2. LUCs 3. LUCs; Focused surface clearance for frequented public use areas (i.e. trails, picnic areas) 4. LUCS; 100 percent surface clearance 5. Unlimited Use/Access (100 percent subsurface clearance to a depth of 12 inches)
Mine and Booby Trap Area	1. No Action 2. LUCs 3. LUCs; 100 percent Surface and six inch subsurface clearance 4. Unlimited Use/Access (100 percent subsurface clearance to a depth of 12 inches)

1 INTRODUCTION

This Remedial Investigation (RI) / Feasibility Study (FS) Report has been prepared on behalf of the United States (U.S.) Army Corps of Engineers (USACE) to further remedial activities under the Military Munitions Response Program (MMRP) at the Former Camp Maxey Artillery Ranges in Paris, Texas (TX) (hereafter referred to as Former Camp Maxey). This RI Report has been prepared in accordance with the U.S. Environmental Protection Agency (USEPA) *Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA* (USEPA, 1988) and the *Munitions Response RI/Feasibility Study (FS) Guidance* [USACE and United States Army Environmental Command (USAEC), 2009]. All work was conducted in accordance with procedures developed in the *Final Work Plan* [Explosive Ordnance Technologies, Inc. (EOTI), 2013], U.S. Army Engineering & Support Center (USAESCH), USACE, Department of the Army, and Department of Defense (DoD) requirements regarding personnel, equipment, and procedures.

1.1 AUTHORIZATION

1.1.1 EOTI was awarded Task Order 0010 under Contract No. W912DY-04-D-0009 on 19 February 2008 to obtain government acceptance of a Decision Document following a RI/FS and all other necessary activities required to accomplish this objective.

1.1.2 The Former Camp Maxey was active from July 1942 to October 1945 during which time infantry were trained in live fire of weapons including pistols, carbines, rifles, tommy guns, automatic rifles, machine guns, mortars, bazookas, anti-tank guns, and artillery. Some of the material produced remains on the site in the form of munitions and explosives of concern (MEC), including munitions constituents (MC), and/or Munitions Debris (MD). MEC represent a potential health and safety hazard to the local populace. Thus, assessment of the Former Camp Maxey falls under the DoD Defense Environmental Restoration Program (DERP) for Formerly Used Defense Sites (FUDS).

1.1.3 By completing the RI and FS, the USACE is in compliance with the DERP statute [10 United States Code (USC) 2701 et seq.] which requires the MMRP activities be carried out subject to and consistent with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as amended (42 USC § 9601 et seq.), and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP).

1.1.4 This RI/FS Report has been prepared in accordance with the U.S. Environmental Protection Agency (USEPA) *Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA* (USEPA, 1988) and the *Munitions Response RI/Feasibility Study (FS) Guidance* [USACE and United States Army Environmental Command (USAEC), 2009d]. All work was conducted in accordance with procedures developed in the *Final Work Plan* (EOTI, 2013), U.S. Army Engineering & Support Center (USAESCH), USACE, Department of the Army, and DoD requirements regarding personnel, equipment, and procedures.

1.2 OBJECTIVE

The objective of the RI is to characterize the nature and extent of MEC and MC at the Former Camp Maxey meeting the requirements of Engineer Regulation (ER) 200-3-1 and the Environmental and Munitions Center of Expertise (EM CX) Interim Guidance 06-04. The purpose of the FS is to identify, develop, and evaluate remedial alternative(s) that mitigate, to acceptable levels, potential risks to human and ecological receptors for current and reasonably anticipated future land use at the Former Camp Maxey.

1.3 PROPERTY DESCRIPTION

1.3.1 Location

The Former Camp Maxey is situated in Lamar County, approximately 9 miles north of Paris, TX. Highway 271 forms part of the eastern border of the site. The site consists of a single Munitions Response Site (MRS) with a total area of 16,235.44 acres. Map 1-1 shows the site and surrounding areas. Map 1-2 identifies the former installation boundary and the FUDS Management Information System (MIS) MRS boundary.

1.3.2 Topography

The Former Camp Maxey lies within the Gulf Coastal Plain which is generally a gently undulating plain characterized by uplands of low relief and broad river valleys. Elevations generally range from 450 to 1,000 feet above mean sea level (amsl). The surface elevation of Pat Mayse Lake is approximately 451 feet amsl. The topography of the Western Range Area is gently sloping down to the east, toward Pat Mayse Lake, with elevations ranging from 450 to 540 feet amsl. The topography of the Eastern Range Area is gently sloping down to the north toward Pat Mayse Lake, with elevations ranging from 450 to 540 feet amsl.

1.4 CAMP MAXEY HISTORICAL INFORMATION

1.4.1 From 1942 to 1947, Camp Maxey was a 41,128-acre U.S. Army post in the northeast corner of the state utilized for training infantry. Camp Maxey was activated as an infantry basic training camp on July 15, 1942, shortly after the U.S. declared war on Japan in December 1941. In October 1944, the camp was designated an infantry Advance Replacement Training Center. Infantry were trained in live fire of weapons including pistols, carbines, rifles, tommy guns, automatic rifles, machine guns, mortars, bazookas, anti-tank guns, and artillery. The camp was deactivated on October 1, 1945, after World War II had ended, and the camp was declared surplus on May 20, 1947. During 1948 and 1949, certificates of decontamination, which included restrictions on land for any purpose and for surface use only, were issued by the USACE. Land was conveyed to the State of Texas and sold to private owners. Later, some of the land was returned to the ownership of the federal government for construction of a dam on Sanders Creek. Table 1-1 and Figure 1-1 include the types and locations of ranges identified in the 1994 Archive Search Report (ASR).

1.4.2 Currently, 6,424 acres of the former camp lands are utilized by the State of Texas for a National Guard post also named Camp Maxey. In addition, approximately 6,575 acres are now occupied by Pat Mayse Lake, which formed after the USACE built a dam on Sanders Creek in 1967. A 4,283-acre portion of the lake is within the MRS as shown on Map 1-2. Over 20,000 acres surrounding the lake are occupied by a USACE flood control and recreation area and a State of Texas Wildlife Management Area. The remaining portion of the former camp lands are now privately owned and are used for residential, agricultural, and recreational purposes.

1.4.3 The National Guard property and the portions of the Pat Mayse Lake within the Munitions Response Area boundary (Map 1-2) were not investigated as part of the RI. The National Guard property is not eligible for the FUDS program and will not be investigated. Pat Mayse Lake will be investigated further under a separate task order.

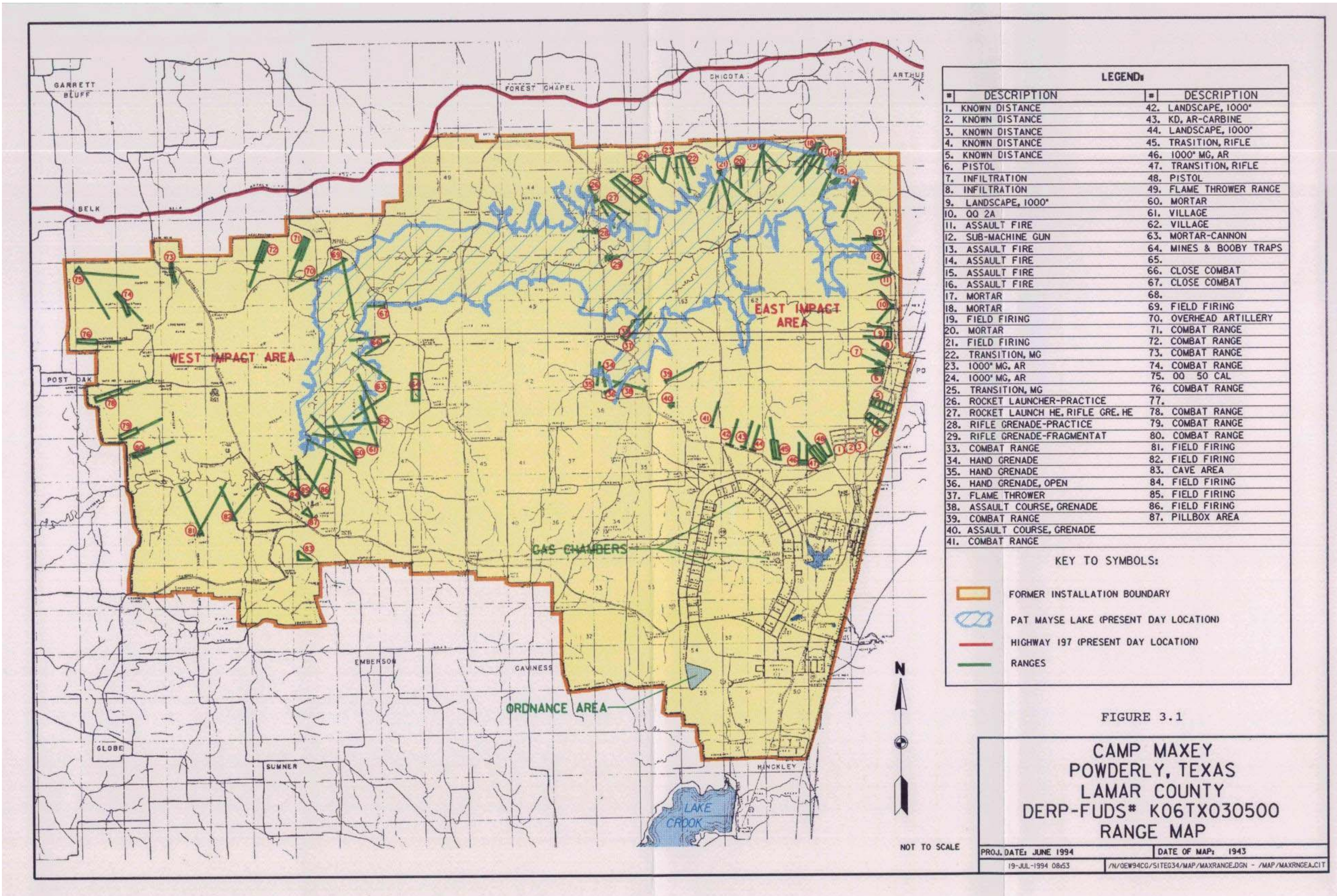
Table 1-1: Historic Ranges (Archive Search Report, 1994)

Ordnance Range or Area Type	Total Number at Camp Maxey	Range Identification Numbers
Combat Range	11	33, 39, 41, 71, 72, 73, 74, 76 78, 79, 80
Field Firing Range	8	19, 21, 69, 81, 82, 84, 85, 86
Assault Firing Range	5	11, 13, 14, 15, 16
“Known Distance” Range	5	1, 2, 3, 4, 5
Mortar Firing Range	4	17, 18, 20, 60
Hand Grenade Range	3	34, 35, 36
Landscape, 1000’	3	9, 42, 44
1000’ MG, AR Range	3	23, 24, 46
Close Combat Area	2	66, 67
Grenade Assault Course	2	38, 40
Infiltration Area	2	7, 8
Pistol Firing Range	2	6, 48
QQ 2A Range	2	10,7 5
Transition, Rifle Range	2	45, 47
Village Area	2	61, 62
Flame Thrower Area	2	37,49
Transition MG Range	2	22;25
Cave Area	1	83
KD, AR-Carbine Range	1	43
Mine and Booby Trap Area	1	64
Mortar, Cannon Range	1	63
Overhead Artillery Area	1	70
Pillbox Area	1	87

Ordnance Range or Area Type	Total Number at Camp Maxey	Range Identification Numbers
Practice Rifle Grenade Range	1	28
Fragmentation Rifle Grenade Range	1	29
Practice Rocket Launch Range	1	26
High Explosives Rocket Launch Range	1	27
Submachine Gun Range	1	12

Note: The range identification numbers refer to the corresponding range numbers in Figure 1-1.

Figure 1-1: Historic Ranges (Archive Search Report, 1994)



1.5 PREVIOUS ORDNANCE DISCOVERIES AND INVESTIGATIONS

1.5.1 Dam Construction Activities (1965-1966)

Dam construction activities began on 29 March 1965. A 2.36-inch High Explosive Anti-Tank (HEAT) rocket was found on the following day, and munitions items continued to be found. An Explosive Ordnance Disposal (EOD) Team from the Red River Arsenal was dispatched to the site on six occasions between 31 March and 4 May 1965 to remove Ordnance and Explosives (OE) items. From 17 May 1965 to 12 May 1966, a full-time two-person U.S. Army demolition team was assigned to the site to identify and remove any OE found during the construction activities. The EOD team looked over each construction area before they permitted equipment to go into the area. During that time, a total of 1,357 OE items were found. Of these, 414, or approximately 30 percent (%), were considered “dangerous” or “hazardous.” The types and number of OE items identified during the dam construction activities as “dangerous” or “hazardous” are listed in Table 1-2.

Table 1-2: Items Located During Dam Construction Activities (1965-1966)

Ordnance Item	Quantity
60mm Mortar	217
2.36–inch HEAT Rocket	120
Blasting Caps	53
37mm AP Projectile	7
M-7 Rifle Grenade	6
81mm Mortar	5
37mm HE Projectile	3
.50 cal Round	2
Hand Grenade	1
Total	**414**

Source: Parsons, 2000
AP = armor piercing
cal = caliber
HE = high explosive
mm = millimeter

1.5.2 Fort Sill EOD (1987-1994)

1.5.2.1 In the 1980s and 1990s, EOD teams from Fort Sill were frequently dispatched to the Former Camp Maxey area to identify and remove or detonate Unexploded Ordnance (UXO) items. Reports of mishaps, detonation, and or discovery, though made to local authorities, are irretrievable (USACE, 1994). Some examples of reported incidents are the inadvertent excavation of mortar rounds during sand quarry operations, followed by the depositing of the excavated fill and munitions on a ballfield; the recovery of landmines by a homeowner performing yardwork; the unearthing of various types of munitions during the construction of the Beaver Creek subdivision; and the detonation of an unknown munition which resulted in injury.

1.5.2.2 The few records of these incidents which do exist are generally not detailed, and do not always note the types and locations of items found. A 13 April 1994 memorandum from the 52nd Ordnance Group at Fort Sill notes that numerous UXO items were identified and removed from the Former Camp Maxey area by the Fort Sill EOD team between 1987 and April 1994. Table 1-3 lists the number and type of items found; however, there are no records regarding the specific locations at which these items were found.

Table 1-3: UXO Removed by Fort Sill EOD Teams (1987-1994)

Ordnance Item	Quantity
81mm Practice Mortar	10
81mm HE Mortar	1
3-inch APHE Projectile	2
60mm Practice Mortar	1
60mm Illumination Mortar	2
40mm Smoke Projectile	1
20mm Practice Projectile	1
2.36-inch HEAT Rockets	4
2.36-inch Practice Rocket	1
M31 Rifle Grenade	1
Hand Grenade	1
Practice Hand Grenade	1
Hand Grenade Simulators	2
Artillery Simulator	1
Total	**29**
Source: Parsons, 2000	

1.5.3 Fort Sill and Pine Bluff EOD (1994-1996)

1.5.3.1 Records kept by the USACE Park Ranger indicate that several additional items were found after April 1994. The majority of these items were 2.36-inch rockets which were found in an area between Pat Mayse East and Pat Mayse West park areas and in the All-Terrain Vehicle (ATV) area. The number and type of UXO items found after April 1994 are provided in Table 1-4.

1.5.3.2 Although EOD teams from Fort Sill and Pine Bluff removed all of the ordnance items listed in Table 1-4, it was evident that the area between Pat Mayse East and Pat Mayse West and the ATV area contained large amounts of UXO. The risk posed by UXO in the ATV area was considered to be high due to the heavy use of the site. In addition, ruts formed by the vehicles in the sandy soil exposed buried UXO. The area between Pat Mayse East and Pat Mayse West did not receive as much traffic, but it was used for hunting. Based on this potential for exposure, a Time-Critical Removal Action (TCRA) was planned for these two areas. The results of this removal action are described in Section 1.5.5 below.

Table 1-4: UXO Removed by Fort Sill and Pine Bluff EOD Teams (1994-1996)

Ordnance Item	Bivouac Area A (Between Park Areas)	East Impact Area C (ATV Area)	Other Locations
2.36-inch Rocket	143	74	15
Rifle Grenade	1	--	--
37mm Projectile	--	--	3
57mm Projectile	--	--	2
75mm AP	--	--	1
155mm Projectile	--	--	1
Total	**144**	**74**	**22**
Source: Parsons, 2000			

1.5.4 1994 Archive Search Report

In June 1994, the USACE, St. Louis District compiled an ASR for Camp Maxey, Site No. K06TX030500, Paris, Texas (U.S. Former Camp Maxey RI/FS Work Plan Paris, Texas W912DY-04-D-0009 1-5 April 2013 Task Order 0010 Army Engineer District, 1994). Based on the results of the ASR, the Commander of the Southwestern Division Corps of Engineers determined that Camp Maxey was eligible under the DERP-FUDS program due to some areas that are “saturated with hazardous and nonhazardous Ordnance and Explosive Waste (OEW).” Camp Maxey was subsequently rated the highest “RAC 1” Risk Assessment Code in May 1995.

1.5.5 1997 Ordnance and Explosives Time Critical Removal Action

From January 27th through April 10th, 1997, Human Factors Applications, Inc. (HFA) conducted a TCRA on 381 acres in the rocket and grenade impact area (East Impact Area C and Bivouac Area A) on the north shore of Pat Mayse Lakes (Contract No. DACA87-95-D-0027, Task Order 0007). The scope of the project included a surface and subsurface MEC clearance to a depth of two feet. During this effort 2,170 2.36in rockets and 10 M-9 rifle grenades were recovered from the Eastern Range Area. The number and type of ordnance items found and their locations are provided in Table 1-5 below. Please reference the HFA Final Removal Report, dated December 5, 1997 (HFA, 1997) for further details.

Table 1-5: UXO Removed During TCRA (1997)

Ordnance Item	Bivouac Area A (Between Park Areas)	East Impact Area C (ATV Area)
2.36-inch Rocket	78	2092
M-9 Rifle Grenade	7	3
Total UXO	**85**	**2095**
Inert OE Items	507	1179
Source: HFA, 1997		

1.5.6 1998 Ordnance and Explosives Survey and Ordnance and Explosives Sampling

In 1997, Corps of Engineers – Huntsville Center (CEHNC) directed UXB International, Inc. (UXB) to conduct an OE Survey and OE Sampling. This sampling included 501 (100 feet x 100 feet) survey grids for a total of approximately 115 acres (Contract No. DACA87-97-D-0006, Delivery Order 0001). MEC items recovered during this effort are included in the table below. Please reference the UXB Final Sampling Report, dated October 9, 1998 (UXB, 1998) for further details.

Table 1-6: UXO Removed During OE Survey and OE Sampling (1998)

Ordnance Item	Quantity
2.36-inch Rockets	2
M9A1 Rifle Grenade	3
M6A2 HEAT Warhead (unfuzed)	2
37mm HE Projectile	1
37mm APHE Projectile	1
75mm APHE Projectile	4
Mk II Hand Grenade	4
Green Star Rifle Grenade	1
Total	**18**
Source: UXB, 1998	

1.5.7 2000 Engineering Evaluation (EE) and Cost Analysis (CA)

In 2000, CEHNC directed Parsons Engineering Science, Inc. (PES) to perform an Engineering Evaluation and Cost Analysis (EE/CA) of Camp Maxey based on the UXB OE Survey and OE Sampling (Section 1.5.6) under Contract DACA87-95-D-0018, Delivery Order 0015. PES prepared the EE/CA report that recommended OE removal action and a series of Institutional Controls for Camp Maxey. Please reference the PES EE/CA report, dated October 2000 (PES 2000) for further details.

1.5.8 2001 OE Removal Action

In 2000, CEHNC directed UXB to conduct an OE removal action of approximately 620 acres scattered throughout the area of the camp. According to UXB's Parcel Index Map (B-2), dated January 22, 2001, 41 parcels totaling 243.3 acres were surveyed, geophysically mapped, and cleared; 50 parcels totaling 82.3 acres were surveyed and geophysically mapped; and 13 parcels totaling 21.9 acres were surveyed (Contract No. DACA87-97-D-0006, Delivery Order 17). MEC items recovered included 19 37mm projectiles and two 75mm projectiles. All MEC was found within 12 inches of the ground surface (one inch to 12 inches) with the majority of the items located at three to four inches below ground surface (bgs). Please reference the UXB Final Removal Report, dated February 2001 (UXB 2001) for further details.

Table 1-7: UXO Removed During OE Removal Action (2001)

Ordnance Item	Quantity
37mm APHE Projectile	18
37mm HE Projectile	1
75mm APHE Projectile	2
Total	**21**
Source: UXB, 2001	

1.5.9 2002 Geophysical Prove-Out for Site Maintenance, Ordnance Investigation, and Removal

In 2002, CEHNC directed Foster Wheeler Environmental Corporation to perform a Geophysical Prove-Out to demonstrate and document the performance of the proposed data acquisition methodology and spatial sampling protocols, sensor(s) and positioning equipment, data analysis and management systems, data transfer procedures, and geophysical quality control (QC) system. The EM61 data produced fewer anomalies but smaller items were not as prominent in the data. It was recommended that the standard EM6I be used in areas where there is no evidence of 37mm or MKII grenades. The EM61 MK2 was recommended for the geophysical investigation when information regarding item size per region was not available. Given a fully operational system, the Vulcan 4T system was recommended as the primary positioning system, as it is well suited for the conditions to be encountered. A line spacing of 2.5 feet was recommended. (Contract No. DACA87-00-D-0039, Task Order 0001). Please reference the Foster Wheeler Geophysical Prove-Out Report, dated October 2002 (Foster Wheeler 2002) for further details. For details on the Geophysical Strip Verification completed for the 2013 RI see the Geophysical Systems Verification (GSV) Letter Report included as Appendix A.

1.5.10 2006 MC Sampling, Analysis, and Evaluation of FUDS

In 2006, as Delivery Order 0004, under Contract W912DY-04-D-0005, PES completed a task order to characterize the presence and concentration of MC at six FUDS, one of which was Camp Maxey. At the Former Camp Maxey, several metal constituents were detected above environmental comparison criteria in both soil and surface water media. Of these constituents, only iron was identified as a potential constituent from munitions used at the Former Camp Maxey. Other sources of metals detected in both soil and surface water media may include natural occurrence, industrial, and urban-related activities at or near Former Camp Maxey. No remedial action was taken as a result of this study.

1.5.11 2007 Site Management, Ordnance Investigation, and Removal

1.5.11.1. In 2000, as Delivery Order 0001, under Contract DACA87-00-D-0039, Tetra Tech EC, Inc. was asked to complete a Site Management, Ordnance Investigation and Removal at the Former Camp Maxey. The objective of this delivery order was to perform a removal action for OE on up to 306 acres around houses, barns, outbuildings, and other structures in active use. In 2005, thirteen properties, consisting of 101 grids, were cleared and 2 were partially cleared. Mag and Dig operations were conducted in 58 of the 101 grids and the remaining 43 grids were geophysically mapped and intrusively investigated. In 2006, four properties, consisting of 31 grids, were cleared. Mag and Dig operations were conducted in 10 of the 31 grids and the remaining 21 grids were geophysically mapped and intrusively investigated.

1.5.11.2. No UXO were encountered during the investigation and the majority of the MD found was in small, unidentifiable fragments. In 2005, two MD items were intact enough to be identified, a 57mm AP-T M70 Recoilless Rifle Projectile (found at a depth of 12.5 inches) and a MK21 Practice Grenade (depth unknown).

1.5.12 2010 Non-Time Critical Removal Action

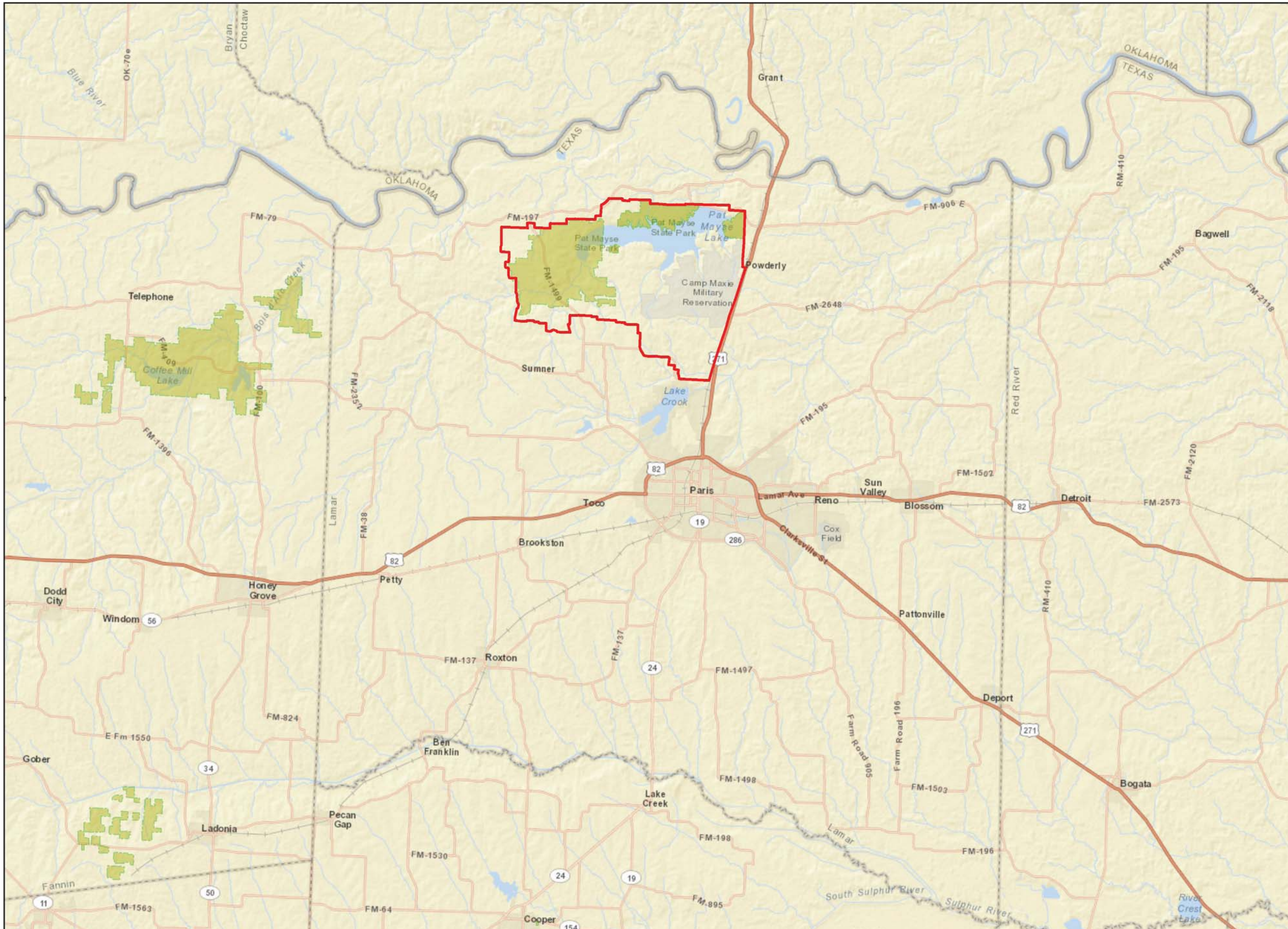
1.5.12.1 In 2006, USA Environmental, Inc. (USAE) was awarded a task order to perform a removal action to remove and dispose of all explosive hazards within selected areas at the Former Camp Maxey in accordance with the signed Action Memorandum dated November 2000. During the field operations, USAE completed surface clearance of 13 ranges consisting of 1,485 grids/341.5 acres. A total of 170 MEC items, including 2.36-inch rockets, M9 rifle grenades, and MKII hand grenades, were located and disposed of through explosive disposal operations. Depths at which MEC and MD items were located is not available. Table 1-8 and Figure 1-1 provides details related to historic ranges and items investigated and found during the Non-Time Critical Removal Action (NTCRA). Please reference the USAE Site Specific Final Report, dated July 2010 (USAE, 2010) for further details.

Table 1-8: Number of MD and MEC Removed During NTCRA (2010)

Range	Anomalies Investigated	MD	MEC
Range 9 (1000" Landscape Range)	5,312	23	--
Range 10 (Anti-Aircraft, OQ Range)	6,559	5	--
Range 11 (Assault Fire Range)	10,813	3	--
Range 12 (Submachine Gun Range)	5,134	3	--
Range 13 (Assault Fire Range)	13,948	473	5
Range 14 (Assault Fire Range)	5,134	38	--
Range 21 (Field Firing Range)	910	--	--
Range 22 (Transition Machine Gun Range)	13,421	637	6
Range 23 (1000" Machine Gun Artillery Range)	9,678	14	--
Range 24 (1000" Machine Gun Artillery Range)	11,722	77	--
Range 25 (Transition Machine Gun Range)	52,379	2,431	6
Range 26 (Rifle Grenade Anti-Tank Range)	7,252	950	--
Range 27 (Rocket Launch HE Range)	19,691	4,500	153
Total	**161,953**	**9,154**	**170**

Source: USAE, 2010
Note: UXO items encountered include 2.36-inch rockets, M9 rifle grenades, and MKII hand grenades.
Note: Range names are similar to how they are documented in Figure 1-1 from 1943. Maps from the 2010 report identify the ranges using the same range numbers but associate them with specific munitions items (e.g., 37mm, 2.36-inch rocket).

1.5.12.2 The maps on the following pages present the location, significant attributes, and historic munitions finds related to the Former Camp Maxey. Map 1-1 shows the location of the Former Camp Maxey relative to northeast Texas. Map 1-2 shows the former camp boundaries, MRS boundaries, historic range fans, and significant land use areas such as the Pat Mayse Wildlife Management Area (WMA) and State Park. Map 1-3 shows the known locations of historic MEC and MD finds of previous investigations at the Former Camp Maxey. It should be noted that geospatial data is not available for many of the items found; therefore, they are not included in Map 1-3.



Legend

- Former Camp Maxey Installation Boundary
- Texas State Parks

03°68'

UTM Zone 15 NAD 83 (Meters)
Data Provided By:
Texas Parks & Wildlife Dept.
U.S. Army Corps of Engineers
ESRI

Miles: 4.5 2.25 0 4.5
Kilometers: 7 3.5 0 7

Location Map:
Former Camp Maxey Lamar County, TX

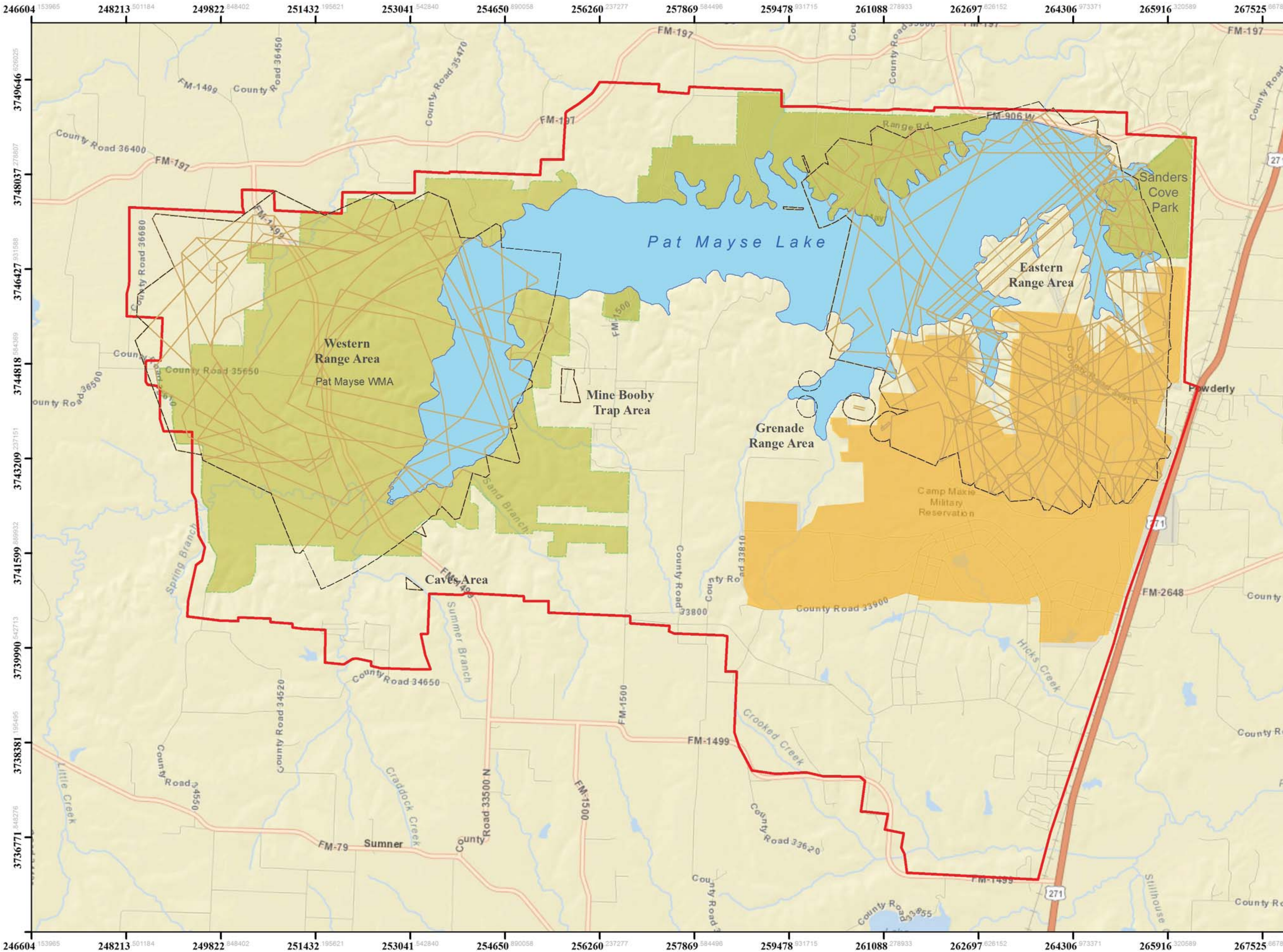
MAP 1-1
FORMER CAMP MAXEY LOCATION

FORMER CAMP MAXEY
LAMAR CO., TX

Prepared For:
U.S. Army Engineering and Support Center, Huntsville

Prepared By:
Explosive Ordnance Technologies, Inc.

DRAWN	VERIFIED	APPROVED
M. Norris	D. Jacobs	J. Daffron
DATE 11/19/13	FILE Former Camp Maxey Location 1-1.mxd	
PAGE # 1-1	SCALE 1 inch = 4.5 miles	



Legend

- Individual Ranges
- Camp Maxey Range Complex (MRA R01)
- National Guard Installation
- Former Camp Maxey Installation Boundary
- Pat Mayse Lake
- Pat Mayse State Park and WMA

03°68'

UTM Zone 15 NAD 83 (Meters)
Data Provided By:
Texas Parks & Wildlife Dept.
U.S. Army Corps of Engineers
ESRI

Miles: 1 0.5 0 1

1.6 0.8 0 1.6 Kilometers

Location Map:
Former Camp Maxey Lamar County, TX

MAP 1-2
OVERVIEW

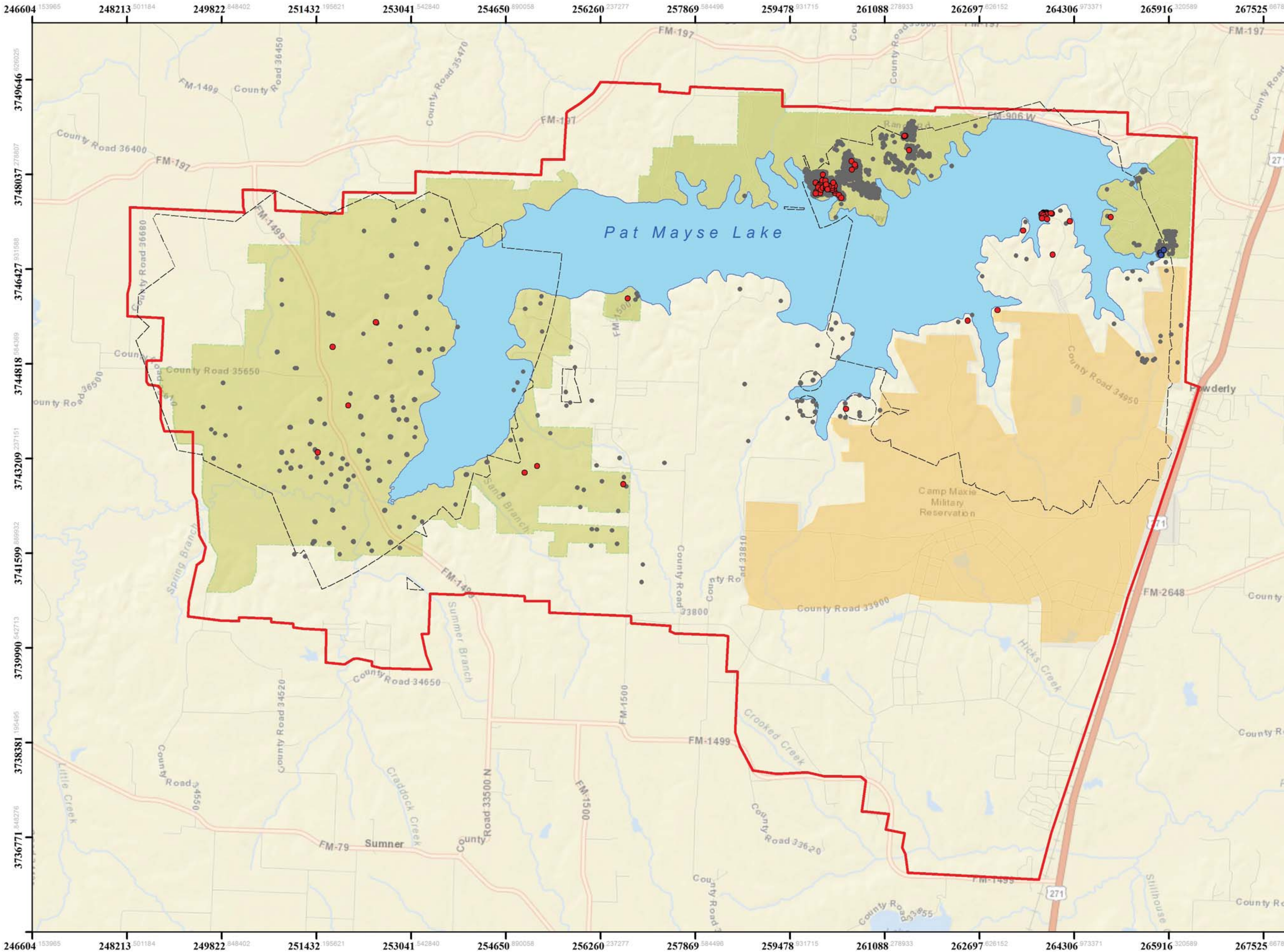
FORMER CAMP MAXEY
LAMAR CO., TX

Prepared For:
U.S. Army Engineering and Support Center, Huntsville

Prepared By:
Explosive Ordnance Technologies, Inc.

EOTI

DRAWN	VERIFIED	APPROVED
M. Norris	D. Jacobs	J. Daffron
DATE 11/19/13	FILE Overview Map 1-2.mxd	
PAGE # 1-2	SCALE 1 inch = 5,280 feet	



MAP 1-3
PREVIOUS INVESTIGATIONS

FORMER CAMP MAXEY
LAMAR CO., TX

Prepared For:
U.S. Army Engineering and Support Center, Huntsville

Prepared By:
Explosive Ordnance Technologies, Inc.

DRAWN	VERIFIED	APPROVED
M. Norris	D. Jacobs	J. Daffron
DATE 12/10/13	FILE Previous Investigations 1-3.mxd	
PAGE # 1-3	SCALE 1 inch = 5,280 feet	

2 PROJECT REMEDIAL INVESTIGATION OBJECTIVES

2.1 CONCEPTUAL SITE MODEL AND PROJECT APPROACH

2.1.1 Project Approach

2.1.1.1 RI tasks were performed in accordance with the Final RI/FS Work Plan (EOTI, 2013). The Draft Final Work Plan, to include the Sampling and Analysis Plan, was reviewed during a teleconference with USACE and Texas Commission on Environmental Quality (TCEQ) on 2 April 2013. The Final Work Plan was accepted by USACE and notice to proceed was issued on 10 April 2013. The following summarizes the key elements of the RI for the Former Camp Maxey.

2.1.1.2 Explosives Site Plan – In accordance with Interim Guidance Document (IGD) 08-01, an Explosive Site Plan (ESP) for the Former Camp Maxey was submitted as a stand-alone document. The ESP provided specifics on the minimum separation distance and engineering controls that were enforced during intrusive operations. The Final ESP was approved on 21 March 2013.

2.1.1.3 Final RI/FS Work Plan – The Final RI/FS Work Plan provided the detailed approach for all MEC and MC investigation activities. The Final RI/FS Work Plan is dated 3 April 2013.

2.1.1.4 RI Fieldwork – Fieldwork to meet the objectives of the RI included the following tasks: a) GSV, b) geophysical investigation, c) intrusive investigation of subsurface anomalies, and d) MC sampling. Field work activities during the RI were limited to the investigation area determined and included:

a) GSV – A site-specific GSV consisting of an Instrument Verification Strip (IVS) and blind seeding in grids throughout the project area was completed. The IVS was conducted prior to and throughout the duration of the digital geophysical mapping (DGM) portion of the project to verify the detection sensors and positioning systems were functioning properly, and to demonstrate the geophysical data collection teams were well trained in system operation. The blind-seeding program placed industry standard objects in grids identified for geophysical survey and subsurface investigations and verified these items were detected. The Final GSV Letter Report is included as Appendix A.

b) Geophysical Investigation – The geophysical investigation process included the necessary collecting, processing, and analyzing of data to develop dig sheets and maps used to reacquire potential MEC locations identified for excavation during the intrusive investigation. Results of the geophysical survey along transects were used to identify areas with high anomaly densities that could indicate a former target area. Grids, positioned in low, medium and high density areas, were geophysically mapped and selected anomalies were investigated to determine their source.

c) Intrusive Investigation of Subsurface Anomalies – An intrusive investigation was conducted in grids within the defined investigation area. This task included the intrusive investigation of anomalies, suspected MEC/Material Potentially Presenting an Explosive Hazard (MPPEH) destruction; MEC/MPPEH accountability and anomaly count; final disposal of MPPEH, MD, and range scrap; and MPPEH inspection.

d) MC Sampling – Surface soil samples were collected using incremental sampling methodology and analyzed for explosives and select metals. Additionally, subsurface soil samples were collected from sampling units (SUs) where surface soil results exceeded the Project Action Limit (PAL) for lead.

2.1.1.5 RI Report – This report is submitted in accordance with the USEPA document *Guidance for Conducting Remedial Investigations and Feasibility Studies under the Comprehensive Environmental Response, Compensation, and Liability Act* (CERCLA) (USEPA, 1988) and the MMRP Center of Expertise Technical Update as well as the *U.S. Army Munitions Response RI/FS Guidance* (USACE & USAEC, 2009).

2.1.2 Conceptual Site Model

The following presents the initial Conceptual Site Model (CSM) developed during the Technical Project Planning (TPP) process. No updates have been made to this CSM, which is considered the baseline. The revised CSM with exposure pathway analyses using results from the field work is presented in Section 4.0.

2.1.2.1 Site Profile

2.1.2.1.1 Location

Former Camp Maxey is situated in Lamar County, approximately 9 miles north of Paris, TX. Highway 271 forms part of the eastern border of the site.

2.1.2.1.2 Military History

From 1942 to 1947, Camp Maxey was a 41,128-acre U.S. Army post in the northeast corner of the state utilized for training infantry. Camp Maxey was activated as an infantry basic training camp on July 15, 1942, shortly after the United States declared war on Japan in December 1941. In October 1944, the camp was designated an infantry Advance Replacement Training Center. Infantry were trained in live fire of weapons including pistols, carbines, rifles, tommy guns, automatic rifles, machine guns, mortars, bazookas, anti-tank guns, and artillery. The camp was deactivated on 1 October 1945, after World War II had ended, and the camp was declared surplus on 20 May 1947. During 1948 and 1949, certificates of decontamination, which included restrictions on land for any purpose and for surface use only, were issued by the USACE (USACE, 1994). Subsequently, on 1 September 1949, 9,989.25 acres were conveyed to the State of Texas for use by the Texas National Guard. In 1967, approximately 6,000 acres of the land previously provided to the Texas National Guard were conveyed back to the federal government for use as a reservoir by the USACE created by the construction of a dam on Sanders Creek.

2.1.2.1.3 Boundaries and Landowners

2.1.2.1.3.1 The former camp is bounded on the east by Highway 271. Today, there are three groups of significant property owners within the Former Camp Maxey area: the federal government, the State of Texas, and private owners. The federal government owns the largest amount of the former camp, including Pat Mayse Lake and the surrounding land. A large portion of this land, 8,925 acres, has been leased to the Texas Parks and Wildlife Department (TPWD) for use as a WMA. Most of the West Impact Area is located within the WMA. The State of Texas owns 6,242 acres where the Camp Maxey Texas National Guard installation is located. Much of the East Impact Area is located within this installation.

2.1.2.1.3.2 The remaining land is privately owned. One significant owner is Paris Junior College, which owns 235 acres. Privately-owned property is generally used for residential, farming, and ranching purposes, and the majority of privately owned land is in the southern portion of the former camp in areas not used for ordnance training. The majority of the ranges were located in what is today federal or state-owned property.

2.1.2.2 Munitions/Release Profile

2.1.2.2.1 Release Mechanisms

From 1942 to 1945 the Former Camp Maxey was used for numerous types of training in live fire weapons to include the munitions items listed in Section 2.1.2.2.2. An array of weapon systems were fired into two distinct impact areas (East and West) at Camp Maxey, including small arms, mortars, bazookas, mines, rifle grenades, anti-tank guns, and artillery. Training also included hand grenades and pyrotechnics. MEC, to include UXO and MC, can exist in a number of physical states that may create risk from exposure to explosive and chemical hazards. MEC may occur at the MRSs from either being abandoned or discarded at the site or from fired munitions that failed to function as designed. MC can be released from fully intact munitions through corrosion and breaching of the casing or the development of cracks, from dissolved filler leaking through screw threads on the munitions casing, or exposed filler that resulted from incomplete detonation. MC can also be released from MD. Explosive filler residue may be scattered over the MRS or may be partially encased in the remains of the munitions casing.

2.1.2.2.2 Munitions Types/Contaminants and Media of Potential Concern

The following munitions items have been identified during investigations on land at the Former Camp Maxey. Pat Mayse Lake was purposefully excluded from the RI effort and will be evaluated separately.

- 2.36-inch HEAT Rockets
- 2.36-inch Practice Rockets
- Blasting Caps
- 37mm AP Projectiles
- M-7 Rifle Grenades
- 37mm HE Projectile
- 37mm APHE Projectiles
- 57mm Projectiles
- 75/76mm APHE Projectiles
- 155mm Projectiles
- 3-inch APHE Projectiles
- .50 cal Rounds
- Hand Grenades
- Practice Hand Grenade
- 81mm HE Mortars
- 81mm Practice Mortars
- 60mm Illumination Mortars
- 60mm Practice Mortars
- 40mm Smoke Projectiles
- 20mm Practice Projectiles
- M-7 Rifle Grenades
- M31 Rifle Grenades
- M9A1 Rifle Grenades
- MK II Hand Grenades
- Hand Grenade Simulators
- Artillery Simulators

2.1.2.2.3 Migration Routes and Mechanisms

Migration of MEC on the surface may occur naturally through soil erosion or a storm event, or by human activities such as farming, ranching, construction, or maintenance at the site. Migration of MEC in the subsurface may occur naturally through surface soil erosion or by intrusive human activities such as farming or ranching, construction, excavation, and maintenance at the site. Migration of MEC within near-shore marine environments and impounded water bodies is possible due to a storm event, potential dredging, and recreational activities. Migration of MC may occur naturally through surface soil erosion, plant or animal uptake, or by human activities such as maintenance and site work. If soil erosion and subsequent surface runoff carries MC into inland impounded water bodies, migration of MC through surface water and sediment contact, or indirect or direct ingestion can occur as well. Migration of MC may occur through groundwater.

2.1.2.3 Physical Profile

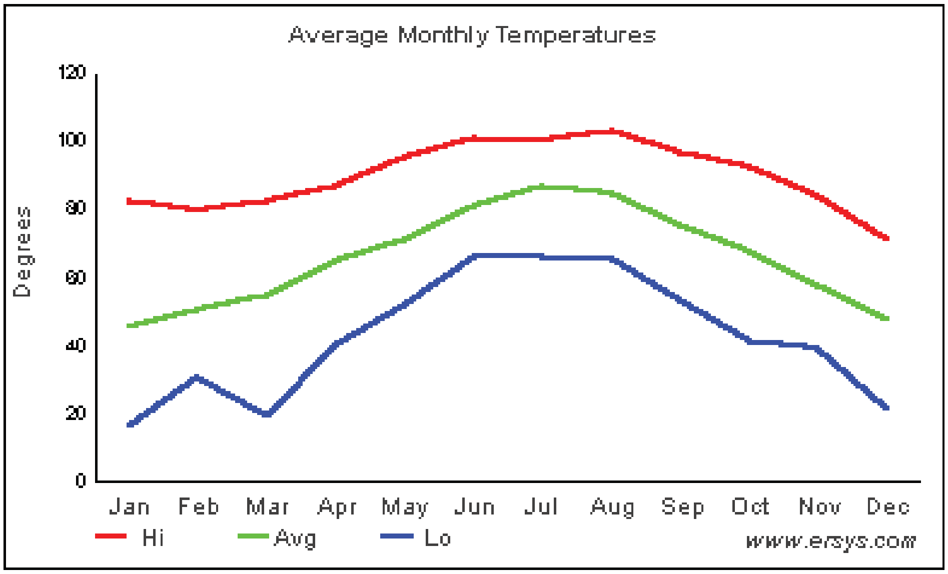
2.1.2.3.1 Climate/Meteorology

2.1.2.3.1 Lamar County is located on the edge of the Gulf Coastal Plain, which is characterized by a humid, subtropical climate, predominantly continental in winter and marine in summer. Tropical maritime air masses flow through the area in late spring, summer, and early fall, and polar air masses frequent the area in winter. Average high temperatures climb to 95 degrees in August and average lows reach 30 degrees in January.

2.1.2.3.2 Rainfall is fairly well distributed through the year and the average annual rainfall is 47.7 inches. From April through September, rain generally falls during thunderstorms, and fairly large amounts fall in a short time. In winter, precipitation may fall as rain, freezing rain, sleet, or snow, but thunderstorms and heavy rains may occur in any month. About 50 thunderstorms occur each year with a few of these thunderstorms accompanied by destructive wind, hail, or high intensity rain. Prevailing winds are southerly during all months of the year. In January and February, northerly winds occur from cold fronts moving through the area. Relative humidity is close to 83 percent during the early hours of the day on the average and drops to around 55 percent late in the afternoon. In Paris, the sun shines for about 75 percent of the daylight hours in the summer.

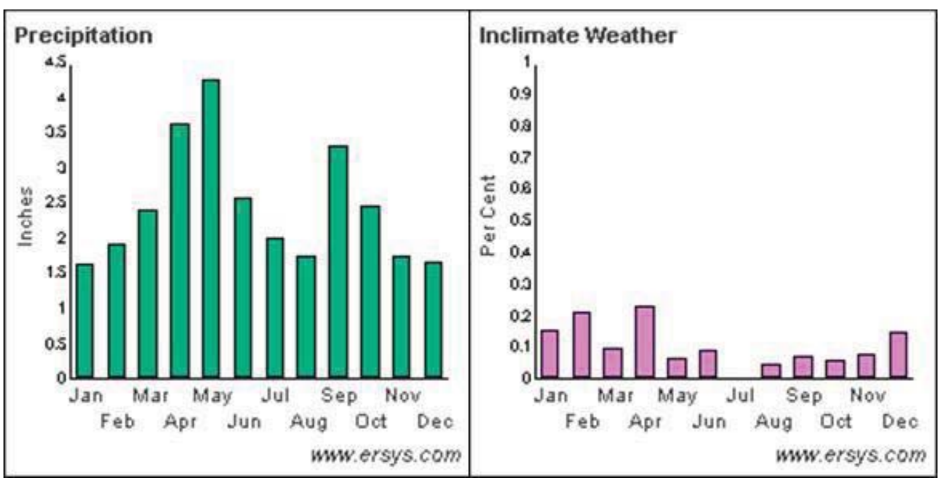
2.1.2.3.3 The following figure illustrates historical weather temperatures that are typical for each month in the Dallas area.

Figure 2-1: Average Monthly Temperatures for Dalls, Texas



2.1.2.3.4 The two charts below show information relevant to precipitation in the Dallas area. The first chart is the typical precipitation for the month indicated. The second chart shows the percentage of each month that is subject to inclement weather (i.e., rain, snow, etc.).

Figure 2-2: Average Precipitation and Inclement Weather



2.1.2.3.2 Topography

2.1.2.3.2.1 Former Camp Maxey lies within the Gulf Coastal Plains physiographic province (BEG, 1996). The Gulf Coastal Plains include three subprovinces, named the Coastal Prairies, the Interior Coastal Plains, and the Blackland Prairies. Former Camp Maxey is located in the northwest portion of the province, in the Blackland Prairies subprovince. The Gulf Coastal Plain is generally a gently undulating plain characterized by uplands of low relief and broad river valleys. The plain includes sedimentary rocks of both marine and continental origin. The rock units range in age from Late Cretaceous to Cenozoic and form the upper portion of the depositional sequence in the Gulf of Mexico Basin. Regionally, the rocks dip to the southeast.

2.1.2.3.2.2 In the Blackland Prairies subprovince, chalks and mark weather to deep, black, fertile clay soils. The blacklands have a gentle undulating surface, cleared of most natural vegetation and cultivated for crops. Elevations within the Former Camp Maxey generally range from approximately 450 to 550 feet amsl. The elevation of Pat Mayse Lake is approximately 450 feet amsl

2.1.2.3.3 Regional Geology

2.1.2.3.3.1 During most of the Paleozoic era (570 million to 245 million years ago), a sedimentary basin existed throughout much of north-central Texas. This basin received sediments of sandstone, limestone, carbonaceous shales, and other marine sediments. Sediments were deposited in this basin until late Pennsylvanian time (320 to 286 million years ago) when the Llano Uplift and Ouachita Fold Belt caused a regional tilting to the west and faulting in the immediate uplift area. The Pennsylvanian-Cretaceous unconformity shows a long period of emergence and erosion (Nordstrom, 1982).

2.1.2.3.3.2 During the first half of the Mesozoic era (245 to 144 million years ago), withdrawal of the seas from the north-central Texas area along with subsidence in the Gulf Coast embayment led to a reversal of draining direction. By the close of Jurassic time, Paleozoic rocks had been reduced to an almost flat-featureless plain, or peneplain, upon which marine sediments were deposited along an oscillating shoreline during the Cretaceous period (144 to 66 million years ago). Two major invasions of the seas during the Cretaceous period are represented by the Comanche and Gulf Series. During the late Cretaceous (Gulf Series), a general uplift occurred to the west and the seas.

2.1.2.3.3.3 Two stratigraphic units of the Gulf Series outcrop in the Former Camp Maxey area: the Eagle Ford Group and the Bonham Formation. The Eagle Ford Formation outcrops in approximately the northern two-thirds of the former camp area. The Eagle Ford Group is approximately 350 feet thick and consists of a medium to dark gray, bituminous, selenitic shale. It contains a few thin platy beds of sandstone and sandy limestone. The Bonham Formation outcrops in approximately the southern third of the former camp area. The Bonham Formation ranges from 375 to 530 feet thick, and consists of marl and clay. This greenish-gray waxy clay weathers yellowish-gray and is fossiliferous.

2.1.2.3.3.4 At the close of the Cretaceous period, sediments of Tertiary and Quaternary age were deposited. Throughout Tertiary time (66 million to 2 million years ago), the land surface was eroded and modified by streams. During Quaternary time (2 million years ago to present), the streams deposited alluvial sediments. The older sediments are represented by terrace deposits above the alluviated valleys of present streams (Nordstrom, 1982).

2.1.2.3.3.5 Quaternary age sediments outcrop in several areas within the Former Camp Maxey boundary. These sediments consist primarily of gravel, sand, and silt. Basal gravel grades upward to tan and gray sand and silt. Along the bed of Sanders Creek, alluvial deposits are found. These flood-plain deposits occur along the Red River drainage system and include low terrace deposits.

2.1.2.3.4 Soil

2.1.2.3.4.1 A soil survey conducted by the U.S. Department of Agriculture in cooperation with the Texas Agricultural Experiment Station identified six soil associations within the county. The six soil associations consist of the Houston Black-Leson-Heiden, Annona- Freestone-Woodtell, Wilson-

Normangee-Crockett, Trinity-Kaufman, Whakana-Porurn, and Severn-Caspiana-Desha (USDA, 1979). Of the six soil associations identified within Lamar County, three are common to the Former Camp Maxey area: the Annona- Freestone-Woodtell Association, the Whakana-Porum Association, and the Severn-Caspiana-Desha Association. Each of the three soil associations is described briefly in the following paragraph.

2.1.2.3.4.2 The Annona-Freestone-Woodtell Association consists of forested soils that have a loamy surface layer and a clayey subsoil. Soils of this association are nearly level to strongly sloping and are slowly permeable to very slowly permeable. This soil association occupies the southern portion of Former Camp Maxey. The Whakana-Porum Association consists of forested soils that have a loamy surface layer and clayey subsoil. Soils of this association are gently sloping to moderately steep and are moderately to very slowly permeable. It covers the majority of land surrounding Pat Mayse Lake. The Severn-Caspiana-Desha Association consists of soils on bottom lands and low stream terraces. Soils of this association are nearly level to gently sloping and are moderately rapidly to very slowly permeable north of the Pat Mayse dam.

2.1.2.3.5 Hydrogeology

2.1.2.3.5.1 Former Camp Maxey is underlain by aquifers in Cretaceous rocks. Immediately underlying the Eagle Ford Group, which outcrops in the Former Camp Maxey area, is the Woodbine Group. The Woodbine Group is the oldest member of the Gulf Series and consists of medium to coarse iron sand, sandstone, clay, and some lignite. The Woodbine Group provides water for all purposes in the Former Camp Maxey area (Nordstrom, 1982).

2.1.2.3.5.2 The group is divided into three water-bearing parts - upper, middle, and lower - which vary considerably in productivity and quality. The upper Woodbine contains water of extremely poor quality with excessive iron concentrations. The middle Woodbine generally contains water of good quality; however, high iron concentrations occur in some areas. The lower Woodbine is the most productive and contains good quality water. High yields are characteristic from the outcrop just north of the Former Camp Maxey area. The salinity of water increases with the depth of the formation.

2.1.2.3.5.3 The total thickness of the Woodbine ranges from 230 feet near the outcrop to 700 feet near the downdip limit of fresh to slightly saline water. The net sand thickness is less than 350 feet, with most of this occurring in the lower Woodbine. The average artesian coefficient of storage is 0.00015 where the Woodbine is under artesian conditions, and the specific yield is about 15 percent. Transmissivity values in downdip areas average 4,700 gallons per day per foot and permeability values average 44 gallons per day per foot.

2.1.2.3.5.4 Chemical quality deteriorates rapidly in well depths below 1,500 feet. In areas between the outcrop and this depth, quality is considered very good overall as long as groundwater with high iron concentrations from the upper Woodbine is sealed off. Water is classified as soft with most chemical analyses showing total hardness as calcium carbonate below 60 milligrams per liter.

2.1.2.3.5.5 Underlying the Gulf Series is the Comanche Series. The upper members of the series include the Washita Group and the Fredericksburg Groups, both of which consist primarily of limestone which does not produce significant quantities of groundwater. The oldest member of the Comanche Series is the Trinity Group. The Trinity Group is a large and prolific aquifer in some areas of north-central Texas; however, in the Former Camp Maxey area, water within this aquifer is generally too saline to use.

2.1.2.3.6 Hydrology

2.1.2.3.6.1 The majority of the Former Camp Maxey area lies within the Sanders Creek watershed and drainage basin. A dam built on Sanders Creek, a tributary of the Red River, forms the Pat Mayse Lake. Pat Mayse Lake is the principal surface water body on the site. The area generally drains to the northeast. About three miles downstream from Pat Mayse Lake, Sanders Creek empties into the Red River, which flows to the south and east until it meets the Mississippi River in eastern Louisiana. Shortly thereafter the Mississippi River empties into the Gulf of Mexico.

2.1.2.3.6.2 The Pat Mayse dam was built in 1967 for flood-control and municipal and industrial water supply purposes. The dam is situated at approximately the northwest boundary of the former camp. Pat Mayse Lake is a USACE project. The total drainage area for the lake is approximately 175 square miles. At the normal lake pool elevation of 451 feet mean sea level, the lake capacity is approximately 124,000 acre-feet. When the water surface is at 451 feet mean sea level, the lake covers 5,993 acres. At the flood control elevation of 460.5 feet mean sea level, the surface area of the lake is 7,680 acres.

2.1.2.4 Land Use and Exposure Profile

2.1.2.4.1 Current Land Use/Activities

2.1.2.4.1.1 The land uses within Former Camp Maxey and surrounding the former camp are predominantly ranching, farming, rural residential, and recreational. Approximately 6,000 acres of the former camp are now occupied by Pat Mayse Lake, and over 6,500 acres are occupied by the Camp Maxey National Guard Installation. Approximately 60 percent of the land within the former area (not including the lake or the National Guard installation) is used for parks and wildlife management. The Pat Mayse WMA contains 8,925 acres of land leased by TPWD from USACE. USACE maintains additional acreage surrounding the lake for flood control.

2.1.2.4.1.2 Within the land maintained by USACE are five developed park areas for public camping, picnicking, swimming, boating, fishing and other outdoor recreation. The five areas include Camp Kiwanis, Pat Mayse West, Pat Mayse East, Sanders Cove, and Lamar Point. Sanders Cove is located on the east side of the lake, Lamar Point is located on the south side, and the remaining areas are located on the north side. In addition to the developed areas, undeveloped areas are used for ATV off-road recreation and public hunting. One 10-acre area north of the lake was used frequently for ATV off-road recreation until it was closed in 1997 after numerous OE items were identified there. Intrusive activities related to recreational purposes within the MRS are generally limited to shallow hand excavations 6-12 inches deep in designated camping areas.

2.1.2.4.1.3 The remaining 40 percent of the former camp is used for ranching, farming, and residential purposes. Private homes are generally in rural areas; however, some subdivision type housing exists primarily in the southeast corner of the former camp, in the area where the cantonment was located and to the east towards Highway 271.

2.1.2.4.1.4 The largest employers in the Paris area include the Campbell Soup Company, soup and juice manufacturer; Kimberly-Clark Corporation, disposable diaper manufacturer; Merico-Earth Grains, snack cake and bread manufacturer; St. Joseph's Hospital and Health Center; and McCuistion Regional Medical Center.

2.1.2.4.1.5 As of 1993, the business establishments in Lamar County included agricultural, forestry, and fishing (2.7 percent); construction (8.5 percent); manufacturing (5.7 percent); transportation, communications, and public utilities (4.9 percent); trade (31.0 percent); finance, insurance, and real estate (7.1 percent); services (33.6 percent), and government (6.6 percent). Of the people employed in Lamar County, 30.3 percent are employed by manufacturing firms, 24.5 percent by the service industry, 19.6 percent by trade firms, 15.3 percent by the government, and the remaining 10.3 percent by other businesses.

2.1.2.4.1.6 The Former Camp Maxey area has been deeded or sold to a variety of public and private owners. Approximately 6,500 acres were deeded to the State of Texas for use by the Texas National Guard. This area, which is called Camp Maxey, is not eligible for FUDS funding, and is not a part of this report.

2.1.2.4.1.7 The primary feature on the Former Camp Maxey land is Pat Mayse Lake; however, the portions of the lake which fall inside the Former Camp Maxey MRS were not investigated and are not included in the RI/FS Report. Pat Mayse Lake was built by the USACE to provide flood control, supply water, preserve fish and wildlife, and provide recreation in the form of boating, fishing and swimming. The lake serves as a reservoir, supplying water to the City of Paris, who then supplies Lamar County and other municipalities. The city owns a two-acre site on the south side of the lake. From this point, water is pumped in two 36-inch water lines that extend southward through the existing Camp Maxey.

2.1.2.4.1.8 Pat Mayse Lake includes six access points for use by the public. These access points have been developed to include campgrounds, picnic areas, swimming areas, and boat ramps. Three of these are on the north side of the lake (The Dam Site, Pat Mayse Park East, and Pat Mayse Park West); one on the east side (Sanders Cove); and one on the south side (Lamar Point). The remainder of the land is undeveloped and open to the public for hunting. The Tulsa District of the USACE maintains an office on the north side of the Lake. The Park Ranger also utilizes this office.

2.1.2.4.1.1 Current Human Receptors

Depending on the location within the Former Camp Maxey, potential current human receptors include a wide variety of people to include residents, outdoor workers (e.g., landscapers, construction/utilities), commercial and industrial employees, recreational users (e.g., hunters, campers), visitors, and trespassers.

2.1.2.4.1.2 Potential Future Land Use/Activities
It is anticipated that the land use will remain the same and that development for similar purposes will likely continue on site.

2.1.2.4.1.3 Potential Future Human Receptors
It is anticipated that potential future human receptors will remain the same and but the numbers may increase as development will likely continue on site.

2.1.2.4.1.4 Land Use Restrictions
Various rules and regulations apply to recreational use within the Pat Mayse WMA and State Park, Pat Mayse Lake, and the surrounding USACE property. All persons accessing the Pat Mayse WMA must possess required permits, stamps or license and must check in upon entering and check out at the end of their activities at the self-registration station. Persons using the WMA may not enter restricted areas identified by boundary signs and/or marked on Pat Mayse (WMA) maps or those areas identified verbally by area personnel. Motor vehicles may not be used in areas other than on designated roads (fire guards along fences are not designated roads) and persons may not camp or build a fire anywhere other than in a designated campsite. Access to the Texas National Guard Installation is restricted by a fence and armed guards.

2.1.2.4.1.5 Archeological/Historical Resources
2.1.2.4.1.5.1 The Former Camp Maxey area has a low probability of archeological and historical significance. No known significant Native American activities occurred in the area. Military buildings and sites of historic significance from World War II have been lost through deactivation, inattention and redevelopment.

2.1.2.4.1.5.2 In a letter dated October 9, 1997, prior to the initiation of the OE characterization, the Texas Historical Commission identified the project area as having the "potential for containing archeological sites which may be eligible for inclusion in the National Register of Historic Places or for designation as State Archeological Landmarks." The letter also suggested that an archeological survey be conducted within those portions of the study area that were to be subjected to brush clearing or ground disturbance (UXB, 1998). As a result, during the 1997 field activities an archeologist from the USACE, Fort Worth District, periodically inspected grids for items of archeological or historical value. No items of cultural, historic, or archeological significance were encountered by USACE while on site in 1997. In addition, no items of apparent historical or cultural significance were encountered during the RI field work.

2.1.2.4.1.6 Demographics/Zoning
According to the U.S. Department of Commerce Bureau of the Census, Lamar County has a population of 49,811 and Paris has a population of 25,082. The population density was 54.9 persons per square mile for the county. In Lamar County, 23.8 percent of the population was under 18 years of age and 17.6 percent was over 65 years of age. Zoning information for Lamar County is not known to be available.

2.1.2.5 Environmental Profile
2.1.2.5.1 The Former Camp Maxey lies within the gently rolling landscape of the Northern Post Oak Savanna ecoregion. The majority of the vegetative cover consists of deciduous forest or woodland

composed mostly of post oak (Quercus stellata), blackjack oak (Quercus marilandica), eastern redcedar (Juniperus virginiana), and black hickory (Carya texana) (Griffith et al., 2007). The understory can include yaupon (Ilex vomitoria), farkleberry (Vaccinium arboreum), winged elm (Ulmus alata), and American beautyberry (Callicarpa americana) (Griffith et al., 2007). Prairie openings contain little bluestem (Schizachyrium scoparium) and other grasses and forbs.

2.1.2.5.2 Ford and Hampton (2005) described the vegetation in the area of the Former Camp Maxey as consisting of plants of the Oak Woods and Blackland Prairie ecosystems (Farquhar et al., 1996). About 65 percent of the installation is post oak/black hickory woodland dominated by post oak, black hickory, southern red oak (Q. falcata), and blackjack oak with an understory of dogwood (Cornus florida) and farkleberry. Little bluestem indiangrass covers approximately 18 percent of the installation where prescribed burning has controlled the encroachment of trees. Shortleaf pine forest is sparse, covering only about 3 percent of the area in small scattered plots. Streamside trees are characterized by water oak (Q. nigra) and elms (Ulmus alata and U. americana).

2.1.2.5.3 Storm water runoff from the site flows into Pat Mayse Lake (TCEQ classified segment 0209) which is the dominant surface water feature in the area. A wetland inventory of the area in 1998 indicated approximately 60 hectares of regulated water bodies, including streams, ponds, lakes and small wetlands (Gravett et al., 1999).

2.1.2.5.1 Wildlife

2.1.2.5.1.1 Common wildlife species that occur within the Northern Post Oak Savanna ecoregion include white-tailed deer (Odocoileus virginianus), eastern wild turkey (Meleagris gallopavo silvestris), northern bobwhite (Colinus virginianus), eastern fox squirrel (Sciurus niger), and eastern gray squirrel (Sciurus carolinensis). Information on typical animal species for the Northern Post Oak Savanna was obtained from the TPWD.

2.1.2.5.1.2 A mammal survey was conducted at Camp Maxey (Texas Army National Guard training site) from October 2002 through June 2004. Thirty-one species were documented and include Virginia opossum (Didelphis virginiana virginiana), least shrew (Cryptotis parva parva), nine-banded armadillo (Dasypus novemcinctus mexicanus), several bat species, coyote (Canis latrans frustror), red fox (Vulpes vulpes fulva), common gray fox (Urocyon cinereoargenteus floridanus), common raccoon (Procyon lotor fuscipes), striped skunk (Mephitis mephitis mesomelas), bobcat (Lynx rufus texensis), white-tailed deer (O. virginianus texana) and several species of squirrels, mice and rats (Edwards and Johnson, 2007).

2.1.2.5.1.3 A herpetofauna biological survey was conducted in 2005 for Camp Maxey (Ford and Hampton, 2005). An estimated 5,009 animals were recorded representing 44 species, including five salamanders, 13 anurans, eight turtles, seven lizards, and 11 snakes. Amphibians comprised over 92 percent of the censused herpetofauna community. Of the anurans, northern cricket frog (Acris crepitans) was the most abundant while the eastern newt (Notopthalamus viridescens) was the most abundant salamander. Individuals of pond slider (Trachemys scripta) were the majority of the turtles censused. For the lizards, eastern fence lizard (Sceloporus undulates) and little brown skink (Scincella lateralis) comprised 65 percent of the sampled community with approximately 41 individuals each. The cottonmouth (Agkistrodon piscivorus) was the dominant snake species with 56 censused animals (Ford and Hampton, 2005). The Arkansas meadow-rue, which is listed as a species of concern, has been found in Lamar County (TPWD, 2014).

2.1.2.5.2 Protected Species

2.1.2.5.2.1 Table 2-1 lists animal species in Lamar County, Texas that are protected by the Federal or State government. The habitat requirements for most of the species listed in Table 2-1 are not present at the Former Camp Maxey. A few of the listed species have habitat requirements that may be considered comparable to the actual habitats present within the vicinity of the site. While some of the bird species listed have been found in Lamar County (i.e., Bald Eagle, American Peregrine Falcon, Arctic Peregrine Falcon, and Interior Least Tern), no protected species have been observed at the Former Camp Maxey.

2.1.2.5.2.2 The watershed is not a designated critical habitat for any of the Federal or State protected species inhabiting Lamar County, TX. The Pat Mayse WMA is located within the Western Range Area of the Former Camp Maxey (the western edge of the Pat Mayse Lake). The primary utilization of the Pat Mayse WMA is for public hunting lands. The Arkansas meadow-rue, which is listed as a plant species of concern, has been found in Lamar County (TPWD, 2014), but was not encountered or impacted during the RI field activities.

Table 2-1: Lamar County, TX - Threatened and Endangered Species

Common Name	Scientific Name	Federal Status	State Status	Habitat Potentially Present in Upland Habitat at Camp Maxey?	Habitat Requirements
BIRDS					
American Peregrine Falcon	*Falco peregrinus anatum*	DL	T	No	Year-round resident and local breeder in west Texas; nests in tall cliff eyries; migrant across state from more northern breeding areas in US and Canada; winters along coast and farther south. Occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.
Arctic Peregrine Falcon	*Falco peregrinus tundrius*	DL		No	Migrant throughout state from subspecies' far northern breeding range; winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.
Bachman's Sparrow	*Aimophila aestivalis*		T	Yes	Open pine woods with scattered bushes and grassy understory in Pineywoods region, brushy or overgrown grassy hillsides, overgrown fields with thickets and brambles, grassy orchards; remnant grasslands in Post Oak Savannah region; nests on ground against grass tuft or under low shrub
Bald Eagle	*Haliaeetus leucocephalus*	DL	T	Yes	Found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds.
Cerulean Warbler	*Dendroica cerulea*			No	Treetops of riverbank woodlands, swamps, and bottomlands; mainly insectivorous.
Eskimo Curlew	*Numenius borealis*	LE	E	No	Historic; nonbreeding: grasslands, pastures, plowed fields, and less frequently, marshes and mudflats.
Henslow's Sparrow	*Ammodramus henslowii*			No	Wintering individuals (not flocks) found in weedy fields or cut-over areas where bunch grasses occur along with vines and brambles; a key component is bare ground for running/walking.
Interior Least Tern	*Sterna antillarum athalassos*	LE	E	No	Subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches,

Common Name	Scientific Name	Federal Status	State Status	Habitat Potentially Present in Upland Habitat at Camp Maxey?	Habitat Requirements
					wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony.
Piping Plover	*Charadrius melodus*	LT	T	No	Wintering migrant along the Texas Gulf Coast; beaches and bayside mud or salt flats.
Sprague's Pipit	*Anthus spragueii*	C		No	Texas migrant, strongly tied to native upland prairie, can be locally common in coastal grasslands, uncommon to rare further west; sensitive to patch size and avoids edges.
Whooping Crane	*Grus americana*	LE	E	No	Potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties.
Wood Stork	*Mycteria americana*		T	No	Forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water; usually roosts communally in tall snags, sometimes in association with other wading birds (i.e. active heronries); breeds in Mexico and birds move into Gulf States in search of mud flats and other wetlands, even those associated with forested areas; formerly nested in Texas, but no breeding records since 1960.
FISHES					
Blackside darter	*Percina maculata*		T	No	Red, Sulfur and Cypress River basins; clear, gravelly streams; prefers pools with some current, or even quiet pools, to swift riffles.
Blue sucker	*Cycleptus elongatus*		T	No	Larger portions of major rivers in Texas; usually in channels and flowing pools with a moderate current; bottom type usually of exposed bedrock, perhaps in combination with hard clay, sand, and gravel; adults winter in deep pools and move upstream in spring to spawn on riffles.
Creek chubsucker	*Erimyzon oblongus*		T	No	Tributaries of the Red, Sabine, Neches, Trinity, and San Jacinto rivers; small rivers and creeks of various types; seldom in impoundments; prefers headwaters, but seldom occurs in springs; young typically in headwater rivulets or marshes; spawns in river mouths or pools, riffles, lake outlets, and upstream creeks.
Goldeye	*Hiodon alosoides*			No	Red River basin below reservoir; spawns spring to July in shallow firm-bottomed backwaters or gravel shoals in tributaries, for the rest of the year adults remain in quiet turbid water of medium to large lowland rivers, small lakes, marshes and muddy shallows connected to them; young feed on microcrustaceans and other inverts; adult feed on surface water insects, also frogs, fishes, and small mammals.

Common Name	Scientific Name	Federal Status	State Status	Habitat Potentially Present in Upland Habitat at Camp Maxey?	Habitat Requirements
Orangebelly darter	*Etheostoma radiosum*			No	Red through Angelina River basins; headwaters ranging from high gradient streams to more sluggish lowland streams, gravel and rubble riffles preferred; eggs buried in gravel and riffle raceways, post-larvae live in quiet water, move into progressively faster water as they mature; young feed mostly on copepods and cladocerans, adults feed on mayfly and fly larvae; spawn late February through mid-April in eastern Texas.
Paddlefish	*Polyodon spathula*		T	No	Prefers large, free-flowing rivers, but will frequent impoundments with access to spawning sites; spawns in fast, shallow water over gravel bars.
Shovelnose sturgeon	*Scaphirhynchus platorynchus*		T	No	Open, flowing channels with bottoms of sand or gravel; spawns over gravel or rocks in an area with a fast current; Red River below reservoir and rare occurrence in Rio Grande.
Taillight shiner	*Notropis maculatus*			No	Sulfur River and Big Cypress Bayou; mostly headwaters, typically large sluggish, mud-bottomed small to large streams and lakes, usually with some aquatic vegetation; spawns March-October in backwaters and pools; feeds mainly on insect larva and cladocerans, also algae.
Western sand darter	*Ammocrypta clara*			No	Red and Sabine River basins; clear to slightly turbid water of medium to large rivers that have moderate to swift currents, primarily over extensive areas of sandy substrate.
INSECTS					
American burying beetle	*Nicrophorus americanus*	LE		Yes	Varies widely from oak-hickory and coniferous forest ridges tops or hillsides to riparian corridors and valley floor pastures; extremely xeric, saturated, or loose sandy soils unsuitable; adults primarily above ground, eggs in soil adjacent to buried carcass, teneral adults overwinter in soil.
MAMMALS					
Black bear	*Ursus americanus*	T/SA;NL	T	Yes	Bottomland hardwoods and large tracts of inaccessible forested areas; due to field characteristics similar to Louisiana Black Bear (LT, T), treat all east Texas black bears as federal and state listed Threatened.
Plains spotted skunk	*Spilogale putorius interrupta*			Yes	Catholic; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie.
Red wolf	*Canis rufus*	LE	E	No	Extirpated; formerly known throughout eastern half of Texas in brushy and forested areas, as well as coastal prairies.

Common Name	Scientific Name	Federal Status	State Status	Habitat Potentially Present in Upland Habitat at Camp Maxey?	Habitat Requirements
MOLLUSKS					
Common pimpleback	*Quadrula pustulosa*			No	Small streams to larger rivers, and associated with nearly every bottom type except deep shifting sands; Red River downstream of Lake Texoma and possibly Big Cypress Bayou and lower Sulphur river basins.
Fawnsfoot	*Truncilla donaciformis*			No	Small and large rivers especially on sand, mud, rocky mud, and sand and gravel, also silt and cobble bottoms in still to swiftly flowing waters; Red (historic), Cypress (historic), Sabine (historic), Neches, Trinity, and San Jacinto River basins.
Ouachita rock pocketbook	*Arkansia wheeleri*	LE		No	Large, dense, diverse beds of other unionids; stable mud, sand, and gravel substrates of medium-sized rivers, backwater or slackwater areas adjacent to the main channel; also reported from cobble-gravel bottoms in pools of small, slow-flowing rivers; Red River Basin.
Wartyback	*Quadrula nodulata*			No	Gravel and sand-gravel bottoms in medium to large rivers; Red, Sabine, and Neches River basins.
White heelsplitter	*Lasmigona complanata*			No	Typically large rivers and streams with sluggish, turbid waters, on mud or mud-gravel bottoms; also smaller streams and reservoirs usually deep in soft mud or occasionally among rocks; quiet areas of otherwise swift streams; Red River with unsuccessful introductions into the upper Trinity River System.
REPTILES					
Alligator snapping turtle	*Macrochelys temminckii*		T	No	perennial water bodies; deep water of rivers, canals, lakes, and oxbows; also swamps, bayous, and ponds near deep running water; sometimes enters brackish coastal waters; usually in water with mud bottom and abundant aquatic vegetation; may migrate several miles along rivers; active March-October; breeds April-October
Texas horned lizard	*Phrynosoma cornutum*		T	No	Open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive; breeds March-September.
Timber/Canebrake rattlesnake	*Crotalus horridus*		T	Yes	Swamps, floodplains, upland pine and deciduous woodlands, riparian zones, abandoned farmland; limestone bluffs, sandy soil or black clay; prefers dense ground cover (i.e. grapevines or palmetto).
PLANTS					
Arkansas meadow-rue	*Thalictrum arkansanum*			Yes	Mostly deciduous forests on alluvial terraces and upper drainages of hardwood slope forests at contacts

Common Name	Scientific Name	Federal Status	State Status	Habitat Potentially Present in Upland Habitat at Camp Maxey?	Habitat Requirements
					with calcareous prairies; flowering March-April.

[a] This table includes all state and federally listed threatened and endangered species known to occur in Lamar County, Texas and have critical habitat in the county. No species have been observed at Camp Maxey.

[b] TPWD 2013.

Status Key:
LE, LT -Federally Listed Endangered/Threatened
PE, PT -Federally Proposed Endangered/Threatened
SAE, SAT -Federally Listed Endangered/Threatened by Similarity of Appearance
C -Federal Candidate for Listing; formerly Category 1 Candidate
DL, PDL -Federally Delisted/Proposed for Delisting
NL -Not Federally Listed
E, T -State Listed Endangered/Threatened
NT -Not tracked or no longer tracked by the State
“blank” -Rare, but with no regulatory listing status

2.2 Preliminary Remediation Goals and Remedial Action Objectives

2.2.1 MEC and MC

2.2.1.1 The primary goal of the RI/FS MEC investigation at the Former Camp Maxey is to characterize the nature and extent of MEC and MC. MEC has previously been recovered from several areas on the former military property and may remain on the site as a result of activities conducted by the DoD during operation of Camp Maxey and may pose a threat to human health. An intrusive geophysical investigation and MEC sampling was conducted to determine the presence and characteristics of MEC. Following the MEC investigation, soil samples were collected, using incremental sampling for surface soil and discrete sampling for subsurface soil, from various locations to obtain data to delineate the nature and extent of potential MC. Data from these investigations was combined with previous MEC investigation and removal data to complete an RI and FS for the Former Camp Maxey and to perform Munitions response Site Prioritization Protocol (MRSPP) scoring of the MRSs defined in the final CSM.

2.2.1.2 The primary goals of the Former Camp Maxey RI and FS are:

- Evaluate the CSM
- Complete geophysical surveys and intrusive investigations of potential MEC
- Collect soil samples to assess presence of MC at the MRS
- Determine nature and extent of MEC and MC at the site
- If necessary, further delineate the site into separate MRSs
- Evaluate human health and ecological risk to include the development of MEC Hazard Assessments (MEC HAs)
- Perform MRSPP scoring of defined MRSs
- Determine if a remedial action may be warranted
- Identify, develop, and evaluate potential remedial alternatives

2.3 Preliminary Identification of Potential Applicable or Relevant and Appropriate Requirements and "To Be Considered" Information

2.3.1 Definition of Applicable or Relevant and Appropriate Requirements

2.3.1.1 According to 40 Code of Federal Regulations (CFR) 300.5, applicable requirements means those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a CERCLA site. Relevant and appropriate requirements means those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that, while not ''applicable'' to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well suited to the particular site.

2.3.1.2 Response actions under FUDS must identify and attain or formally waive applicable or relevant and appropriate requirements (ARARs) under Federal and State laws (ER 200-3-1). Although the RI is not considered a response action, preliminary identification of chemical-specific and location-specific ARARs is conducted during RI site characterization. ARARs are used as a “starting point” to determining the protectiveness of a site remedy. When ARARs do not exist for a particular chemical or remedial activity, other criteria, advisories, and guidance referred to as To Be Considered (TBC) are useful in designing and selecting a remedial alternative.

2.3.1.3 As the RI/FS process continues, the list of ARARs and TBCs will be updated, particularly as guidance is issued by state and federal agencies. ARARs and TBCs will be used as a guide to establish the appropriate extent of site cleanup; to aid in scoping, formulating, and selecting proposed treatment technologies; and to govern the implementation and operation of the selected remedial alternative. As part of the FS, primary consideration should be given to remedial alternatives that attain or exceed the requirements of the identified ARARs and TBCs. Throughout the RI/FS phase, ARARs and TBCs are identified and used by taking into account the following:

- Contaminants suspected or identified to be at the site;
- Chemical analysis performed, or scheduled to be performed;
- Types of media (air, soil, ground water, surface water, and sediment);
- Geology and other site characteristics;
- Use of site resources and media;
- Potential contaminant transport mechanisms;
- Purpose and application of potential ARARs and TBCs; and
- Remedial alternatives considered for site cleanup.

2.3.1.4 Chemical-Specific - Chemical-specific requirements define acceptable exposure levels for specific hazardous substances and, therefore, may be used as a basis for establishing preliminary remediation goals and cleanup levels for chemicals of concern in the designated media. Chemical-specific ARARs and TBCs are also used to determine treatment and disposal requirements for remedial actions. In the event a chemical has more than one requirement, the more stringent of the two requirements will be used.

2.3.1.5 Location-Specific - Location-specific requirements set restrictions on the types of remedial actions that can be performed based on site-specific characteristics or location. Alternative remedial actions may be restricted or precluded based on federal and state laws for hazardous waste facilities or proximity to wetlands, floodplains or man-made features, such as existing landfills, disposal areas, and local historic landmarks or buildings.

2.3.1.6 Action-Specific - Action-specific requirements set controls or restrictions on the design, implementation, and performance of remedial actions. They are triggered by the particular types of treatment or remedial actions that are selected to accomplish the cleanup. After remedial alternatives are developed, action-specific ARARs and TBCs that specify remedial action performance levels, as well as specific contaminant levels for discharge of media or residual chemical levels for media left in place, are used as a basis for assessing the feasibility and effectiveness of the remedial action.

Table 2-2: Potential ARARs and TBC Criteria

Activity	ARAR/TBC	Reference/Citation	Applicability or Relevance
Chemical-Specific			
No applicable chemical-specific ARARS or TBC Criteria.			
Location-Specific			
No applicable location-specific ARARS or TBC Criteria.			
Action-Specific			
Consolidated Shots (munitions destruction)	Resource Conservation and Recovery Act (RCRA) Subpart X (Miscellaneous Units)	40 CFR Part 264, Subpart X	RCRA miscellaneous units are a unique category of hazardous waste management units. Subpart X is applicable if munitions are consolidated for treatment, storage, or disposal.
To Be Considered (TBC) Criteria			
No additional and applicable TBC Criteria.			

2.4 Institutional Analysis

2.4.1 Institutional analyses are prepared to support the development of institutional control strategies and munitions response alternatives. These strategies rely on existing powers and authorities of government agencies to protect the public at large from MEC and MC risks.

2.4.2 A review of government institutions and private entities that exercise jurisdiction and ownership indicates that the property encompassing the Former Camp Maxey is under the jurisdiction of both government agencies and private landowners including the USACE and the State of Texas. On properties the federal or state government owns or controls, remedial actions, to include land use controls (LUCs), can be more easily implemented, maintained, or enforced. Before any alternative containing a LUC component can be selected, there needs to be documented commitment from the current landowners that they will implement, maintain, and enforce the LUCs. See the Institutional Analysis Report in Appendix M for details.

2.5 Data Needs and Data Quality Objectives

2.5.1 Data Needs

2.5.1.1 Data needs support the primary goal to characterize the nature and extent of MEC and MC at the Former Camp Maxey. The data collected was used to perform and complete the RI, human health and ecological risk assessments, FS, MEC hazard assessments, and MRSPP scoring.

2.5.1.2 Historical data were considered when determining data needs. Five data collection areas were identified for the RI; Western Range Area, Eastern Range Area, Grenade Range Area, Cave Training Area, and Mine and Booby Trap Training Area. The Western and Eastern Range areas make up the largest data collection areas. Portions of the Eastern Range Area were excluded from the study area, since there is sufficient data available from previous investigations and removal actions.

2.5.1.3 Historical data, as well as previous investigation data, concerning the presence of MEC was incorporated into the RI Report as both site history and RI data. The large overall size of Former Camp Maxey has resulted in multiple investigation and clearance activities. This information was useful for MEC characterization activities for the overall site.

2.5.1.4 Data from the geophysical investigations with intrusive anomaly investigations were incorporated in the RI Report. MEC found at the site was documented in field logs/dig sheets and locations logged using Global Positioning System (GPS). This information was brought together in Geographical Information System (GIS), along with data available from historical review and previous investigation/removal projects, and displayed on maps that summarize the results of the field activities.

2.5.1.5 Data collected as part of the MC surface sampling and subsurface investigation was incorporated into the RI Report as supplied by the laboratory following a data quality review. Data was compared to background levels (metals) and Texas Risk Reduction Program (TRRP) Tier 1 Residential Protective Concentration Limits (PCLs) (metals and explosives). Detections were summarized and exceedances were mapped using GIS. Analytical data was used to summarize path forward recommendations for the Former Camp Maxey.

2.5.1.6 Data collected as part of the RI field activities is used to produce the FS for the Former Camp Maxey. The FS evaluates options for the site including no further action and various clearance activities with institutional controls.

2.5.2 Data Quality Objectives

2.5.2.1 Data Quality Objectives (DQO) were established for this project to incorporate the data needs of the combined RI/FS Report. The RI sections of the report provide results of the MEC and MC characterization investigations, results from previous investigations and removal actions, and historical information. The RI sections of the report were prepared first, following the conclusion of field activities. The RI sections include a logical conclusion to the status of MEC and MC at the site based on information gathered in the field as well as any new or further MRS delineations resulting from the RI results. The RI sections contain maps showing the MEC and MC investigation designs and results.

2.5.2.2 The use of DQOs is a systematic approach for establishing the quality and quantity of data needed to support project decisions. To establish DQOs, the intended use of the data, possible consequences of incorrect decisions attributed to inadequate or invalid data, and an acceptable level of uncertainty must be considered. DQOs are developed during the TPP in accordance with Engineer Manual 200-1-2.

2.5.3 Data Quality Objectives for MEC Investigation

Below are the DQOs that were established for the RI. Additionally, MEC DQOs are presented in Table 2-3.

2.5.3.1 State the Problem

- Information regarding the potential distribution of MEC at the MRS is limited or unavailable
- The MRS boundaries are unknown relative to the presence of MEC
- The extent and location of field sampling for the identification of the quantity and distribution of MEC at the MRS is currently unknown

2.5.3.2 Identify the Decision

- Obtain data regarding the presence of MEC at the MRS
- Define the MRS boundaries
- Define the areas of interest within the MRS
- Define the locations within the MRS to be covered during field sampling

2.5.3.3 Identify Inputs to the Decision

- Historical information (e.g., interview records, field notes, aerial photos, maps) regarding potential MEC
- Observations:
    - Visual field MEC confirmation
        - Type(s) of MEC
        - Location(s) of MEC items

  - Proximity to inhabited locations and structures (public roads, recreation paths, homes, etc.)
  - Accessibility of the site
- The CSM (i.e. historical information [interview records, field notes, aerial photographs, maps] anticipated MEC type(s), anticipated MEC distribution, terrain and vegetation, current/proposed land use, and natural and cultural boundaries.)
- Statistically calculated MEC densities based on historical use of area, previous MEC investigation and removals, and current field sampling data
- Present and/or future land use considerations (i.e., site coverage needs)
- Statistical analysis tools

2.5.3.4 Define Boundaries of Study

- The MRS was divided into the following data collection areas: Western Range Area; Eastern Range Area; Grenade Range; Cave Training Area; and Mine and Booby Trap Training Area. The vertical extent of the survey was from ground surface to the detection depth of MEC.
- Exclusive of areas with thick vegetative cover. Meandering transects used to collect anomaly density data avoided areas that cannot be relatively easily cleared of interfering vegetation using hand tools.
- Time frame for collection
- Spatial boundary based on geophysical equipment capabilities for particular MEC types and site conditions
- Rights of Entry

2.5.3.5 Develop a Decision Rule

- Sampling should be in an amount optimal to characterize the site. Density transects are used to determine area of low, medium and high anomaly density. The classification of areas by relative anomaly density was made by the project delivery team based on the results of the transect survey. The intent was identify potential target areas, characterized by relatively high anomaly densities; areas with minimal impact with low density; and areas impacted by military training at the edge of target areas with medium anomaly densities. The classification of the areas by anomaly density may vary with the different data collection areas (i.e., high density areas in the Grenade Area may have higher concentration than the high density areas in the West Impact Area). Anomalies were not investigated along transects; however, data relating to the anomaly density was used to select location for 50foot by 50foot or 100foot by 100foot grids. Anomaly density was determined using one meter wide transects at various spacing.

  - Western Range Area - 100 meter spacing
  - Eastern Range Area – 81 meter spacing
  - Grenade Area – nine meter spacing
  - Cave Training Area – Data was not collected along transects in the Cave Training Area because ROEs were not granted for any portion of the site.

  - Mine and Booby Trap Training – Data from an initial ground reconnaissance was used to determine MEC sampling requirements

- Historical records indicate mortar and artillery ranges in the Western Range Area, while the ranges in the Eastern Range Area were predominately used for 37mm and 2.36-inch rockets. Historical MEC finds in these areas generally support this historical use. Transect spacing was designed based on the estimated size of the target area and target area anomaly density. Target area anomaly densities are conservatively estimated to be 100 anomalies per acre. One factor in determining the target area diameter is the horizontal range of fragments produced by expected munitions. The maximum horizontal fragmentation distance provided on fragmentation data sheets represents the distance in any direction from point of detonation where fragmentation could be located (i.e., the frag radius). As an example, a 37mm rocket has a fragmentation distance of up to 1044 feet and therefore the diameter of circle around a target where there is potential for fragmentation is 2088 feet. Conservative target area diameters for each data collection area are used as inputs to Visual Sample Plan to determine transect spacing. The following target area diameters were used as inputs to Visual Sample Plan:
  - Eastern Range Area – 450 feet
  - Western Range Area – 600 feet
  - Grenade Range – 160 feet

- When reconnaissance indicates evidence of MEC use or proximity to areas of MEC use, field sampling for further characterization of MEC quantities and distribution were recommended.
- If 1) historical information and 2) field sampling or statistical predictions indicate no evidence of MEC in an area, then the area may be reduced to contain only areas exhibiting evidence of MEC.
- If a sampling methodology will provide for sampling of a statistically representative portion of the site, then it was implemented to define the locations and the area to be covered during field sampling.
- If a sampling methodology does not provide for sampling of a statistically representative portion of the site, it was revised to do so by sampling design modification, or it was not be implemented.

2.5.3.6 Specify Tolerable Limits of Decision Error

If all the inputs to the decision rule were performed to the standard of QC/Quality Assurance (QA) procedures as specified in the Quality Assurance Project Plan (QAPP) and the Work Plan, then the error is within tolerable limits.

2.5.3.7 Optimize the Design for Obtaining Data

Transects were utilized to establish a contamination boundary and possibly reduce the area of interest.

Table 2-3: MEC DQOs

DQO	*Problem Statement*	*Project Goals*	*Required Information Inputs*	*Input Boundaries*	*Analytical Approach*	*Performance Criteria*	*Plan for Obtaining Data*	*Results / Deviations*
Explanation	**Define the problem that necessitates this study**	**Identify study questions**	**Identify data and information needed to answer study questions**	**Specify the target population and define spatial limits**	**Develop the logic for drawing conclusions from findings**	**Specify probability limits for false rejections and false acceptance decision errors**	**Select the plan that meets the performance criteria**	
MRS Characterization	Determine the nature and Extent of MEC	-Determine the location and type of MEC present -Determine the spatial extent of MEC -Determine if MEC exposure pathways for humans are complete -Determine if MEC pose a human health risk.	-Historical data -CSM -Results of visual observations within transects and grids. -Geophysical data (digital instrument response). -Results of intrusive investigation of identified anomalies. -Survey of site receptors and land use.	<u>**Western Range Areas:**</u> • Non-Intrusive DGM transects- 65 acres (1 meter wide and spaced 100m apart.) • Intrusive Investigation of grids in high, medium and low density areas. • Additional transects may be added to bound smaller target areas, if initial survey results indicate that they exist. The decision to add supplemental transects will be made by the PDT, if unexpected items are located in the study area. <u>**Eastern Range Areas:**</u> • Non-Intrusive DGM transects- 16 acres (1 meter wide and spaced 81m apart.) • Intrusive Investigation of grids in high, medium and low density areas. <u>**Grenade Range Area:**</u> • Non-intrusive DGM transects 9.25 acres (1 meter wide and 9m spacing) • Intrusive Investigation of grids in high, medium and low density areas. <u>**Mine/Booby Trap Area/Cave Areas:**</u> • Visual reconnaissance • Non-intrusive DGM transects / intrusive investigation of grids, pending results of reconnaissance. <u>**Boundary Identification:**</u> MEC identified along MRS boundaries will trigger step out procedures resulting in discretionary DGM transects/grids. Investigation Areas that are **thickly vegetated will be avoided and all areas of investigation are limited to available ROE's.	-All MD, frag, and high density anomaly areas will be evaluated as possibly indicative of the location of MEC. -Dig results will be used to define the location and spatial extent of MEC. -Step out procedures will be performed to bound areas impacted by concentrated munitions use that are located at the MRS boundary. -DGM grids with 100 percent intrusive investigation will be used to assess high, medium and low density areas. -Grids saturated with anomalies will be investigated until sufficient data is obtained to characterize the area. In high density areas (>50 anomalies per 50ft x 50ft grid), if 20 percent of anomalies have been dug and all of the results indicate a similar source (e.g. frag), the USACE geophysicist will be consulted to identify additional digs or conclude that the grid is adequately characterized. -Alternative actions will be formulated in the Feasibility Study based on the location and density of MEC, land use, and other data gathered during the investigation and comparison of those data with criteria established herein.	DGM system function checks: • Personnel Test • Vibration Test • Static Background / Spike • 6 Line / 2 Line Tests • Repeat Lines (2 percent daily) Daily GPS Checks (sub-meter for DGPS RTK; larger error up to 10m for density transects allowed) DGM Coverage tool check, coverage > 95 percent at planned line spacing for all non-fiducial grids DGM Along-line measurement spacing, 98 percent < 25cm DGM Anomaly reacquisition within 1 meter. No contacts < 15 percent IVS test strip check passed daily All GSV blind seeds found IAW the Work Plan Analog geophysical instruments checked on the IVS test strip daily when in use	Determine anomaly density and distribution from DGM transects using statistical tools; perform DGM surveys of grids in high, medium and low density areas. Data collection along DGM transects -65 acres, 16 acres, 9.25 acres. Locations of all grids will be reviewed by USACE prior to field work. 100 percent intrusive investigation of selected anomalies identified in DGM grids. Intrusive results will be used in the MEC HA to determine the MEC hazard levels for the site.	<u>**Western Range Area:**</u> DQOs were achieved in areas where rights of entry were available. Areas where access was not granted are identified and recommended for additional investigation. <u>**Eastern Range Area:**</u> DQOs were achieved. Over 16 acres of transects were collected and 20 grids were mapped and investigated. <u>**Grenade Range Area:**</u> DQOs were achieved. Over 9.4 acres of transects were collected and 14 grids were mapped and investigated. <u>**Mine/Booby Trap Area:**</u> An instrument –aided visual survey (IAVS) was completed in parcels where ROEs were granted (approximately 24 percent of the total site acreage). MD turned over by a property owner is consistent with the historical training records, indicating practice mine training. <u>**Cave Area:**</u> DQOs were not achieved in this area since access was not granted by the property owner.

2.5.4 Data Quality Needs for MC Investigation

2.5.4.1 State the Problem

- Determine the nature and extent of MC associated with munitions use during training activities at the Former Camp Maxey

2.5.4.2 Identify the Decision

- What type of MC were potentially released to the surface soil at the Former Camp Maxey as a result of former activities?
- What is the range of MC concentrations across the MRS?
- What is the spatial extent of MC across the MRS?
- Are MC exposure pathways for humans/ecological complete at the Former Camp Maxey?
- Does MC pose a human health risk at the Former Camp Maxey?
- Does MC pose an ecological risk at the Former Camp Maxey?

2.5.4.3 Identify Inputs to the Decision

- Historical data
- Background soil data
- Locations of high/medium density DGM grids (50 feet by 50 feet)
- Location of range structures, firing points and other evidence of munitions based on observations in the field
- TRRP PCLs for soil
- Risk Assessment
- Survey of site receptors and land use

2.5.4.4 Define the Boundaries of the Study

- Eastern and Western Range Areas:
    - Firing Points
    - Berms
    - Incremental sampling (IS) collected in high/medium density grids (50 feet by 50 feet) in 0-6 inches of soil and 30 increments
- Grenade/Cave Areas:
    - IS collected in high/medium density grids (50 feet by 50 feet) in 0-6 inches of soil and 30 increments
- Mine/Booby Trap Area:
    - IS collected in high/medium density grids (50 feet by 50 feet) in 0-6 inches of soil and 30 increments
- Background: Eight surface background samples were collected from within the MRS boundary but in areas determined not to have been impacted by DoD use. Samples were 50 feet by 50 feet IS samples collected from 0-6 inches and sampled in triplicate
- Sub-surface samples were required, and ten discrete sub-surface background samples (6-12 inches) were collected during the sub-surface sampling mobilization in a location within the MRS

boundary that does not have any indication of MEC use. Sub-surface samples were collected in accordance with the Final Work Plan (EOTI, 2013). Sub-surface background samples were analyzed for only those metals that were found to be above the screening criteria in the IS surface samples

2.5.4.5 Develop a Decision Rule

- Compare analytical results to the Project Action Limits (PALs) shown in Table 3-4. The PALs are the higher of site specific background values and TRRP Tier 1 Residential PCLs for a 30-acre source area (June 29, 2012).
- If the analytical results exceed the agreed upon screening criteria, additional subsurface samples were collected in the affected density areas.
- If an IS sample indicates risk for human health or the environment, additional step out samples were not be collected. The extent of the horizontal contaminations equaled the extent of the density area from which the sample was collected.
- If an IS SU is detected above screening criteria, the grid was broken up into 4 quadrants, with one subsurface sample collected from each quadrant.
- If firing points or berms are identified an IS sample was collected and analyzed for target metals. Sample 10 percent of all firing points and all berms identified in the field.

2.5.4.6 Specify Tolerable Limits on Decision Errors

- Two possible decision errors for this project:
  - Type I: concluding that there is MC contamination within the MRS boundary of Camp Maxey when there is none.
  - Type II: Concluding that there is no MC contamination within the MRS boundary of Camp Maxey when there is.
- Type 1 errors are more tolerable; therefore, we need to minimize type II errors so none occur.
  - Utilize IS samples in high/medium density areas to assure samples are representative of DoD use.
  - When possible, analyze at the lab minimum detection levels that are equal to or lower than the PCL's.

2.5.4.7 Optimize the Design for Obtaining Data

- Collect IS samples at 10 percent of observed Firing Points
- Collect IS samples in High/Medium density grids associated with munitions use, as defined from previous MEC investigations or from the RI field work
- Samples will be analyzed for explosives and select metals in all of the high/medium density MEC grids
- Samples will be analyzed for select metals in the IS samples collected at the firing points.
- IS resulting in exceedance of the screening criteria require additional subsurface sampling (6-12 inches) to establish extent
- In the event that MEC items are consolidated for demolition, a post detonation composite sample will be collected. The sample results will be compared to the toxicity characteristic

leaching procedure (TCLP) values, if the results are greater than 20 times the TCLP values, then the sample would be reanalyzed by the laboratory for TCLP analysis.

- In the event that an approved screening value is below the approved laboratory's Limit of Detection, and the results indicate a non-detect, it will be assumed that the screening value has not been exceeded.

3 CHARACTERIZATION OF MEC AND MC

3.1 Remedial Investigation Field Activities Overview

3.1.1. RI field activities at the MRSs began in April 2013 and continued through December 2013. The MEC field investigation team consisted of a Senior UXO Supervisor (SUXOS), a dual UXO Safety Officer (UXOSO) / UXO Quality Control Specialist (UXOQCS), and UXO Technician IIIs, UXO Technician IIs, and UXO Technician Is. RI field activities were completed in December 2013. The following sections discuss the various portions of the field investigation and results in detail.

3.1.2. The following major tasks were performed to meet the project objectives:

- GSV
- Surface Preparation
- Geophysical Investigation
- Intrusive investigation and identification of anomalies
- Proper disposal of all recovered MEC, MD and non-MD material in accordance with federal, state and local regulations
- MC sampling

3.1.3. Before engaging in any activities on site, all personnel reviewed the ESP, RI Work Plan, and the Accident Prevention Plan. A Daily Safety Meeting was completed every morning before the commencement of the day's activities.

3.2 Munitions and Explosives of Concern Characterization

3.2.1 Geophysical System Verification

DGM was performed utilizing the Geonics EM61 MK2 time domain electromagnetic system. Prior to and during the DGM activities, a site-specific GSV was completed. The GSV consisted of an IVS and blind seeding in grids throughout the project area. The IVS was conducted prior to and throughout the duration of the DGM portion of the project to verify that the detection sensors and positioning systems were functioning properly, and to demonstrate that the geophysical data collection teams were well trained in system operation. Details concerning the GSV can be found in the Final GSV Letter Report (Appendix A).

3.2.2 Surface Preparation

Brush cutting was required to ensure effective DGM and surface / subsurface removal of MEC and MD. Surface metal removal included the visual inspection of each transect for metal ordnance related items and scrap. This activity helped ensure that only subsurface anomalies are detected during subsequent geophysical survey operations. A team consisting of at least two UXO qualified personnel (UXO Technician II or above) performed the surface metal removal.

3.2.3 MEC Field Work and Results

3.2.3.1. Approximately 200 miles of DGM investigation transects (approximately 80 acres [one meter transect width]) were collected from the Eastern and Western Range Areas and the Grenade Range Area. The results of geophysical data collected from transects was used to develop anomaly density maps to assist in determining where grids would be placed for further geophysical and intrusive anomaly investigation. Using the anomaly density maps and historic information from previous investigations 96 grids (87 [50 feet x 50 feet] and 9 [100 feet x 100 feet]) covering approximately 7 acres were established within the Eastern and Western areas and in the Grenade Range Area. 100 percent of each of the grids was geophysically surveyed and anomalies were selected for investigation. In total, 19,201 anomalies were detected along transects and in grids. A total of 1,980 anomalies detected in grids were intrusively investigated.

3.2.3.2. As stated previously, a total of 1,980 anomalies were intrusively investigated in the Eastern and Western areas and in the Grenade Range Area. During the investigation, 18 UXO items were discovered; 16 in the Western Range Area, one in the Eastern Range Area and one in the Grenade Area. A total 15 of the 18 UXO items encountered were found on the ground surface. The remaining three UXO were found in the Western Range Area at depths no greater than 12 inches. The majority of MD was found on or within 12 inches of the ground surface, with the exception of two items found at depths of 13 inches (unidentifiable frag) and 24 inches (empty 155mm illumination round). The remainder of the anomalies were identified as either non-munitions-related metallic debris, such as barbed wire and small arms ammunition not related to military use or geologic anomalies. All excavation holes were backfilled to their prior condition. Table 3-1 summarizes the MEC investigation for each MRS. Table 3-2 provides a summary of all UXO items identified with specified depths.

Table 3-1: MEC Investigation Summary

Investigation Area	Investigation	Results
Western Range Area	Transects: 213,900 meters Grids: 62 Anomalies Investigated: 1263	UXO: 16 items MD: 408 pounds (lbs)
Eastern Range Area	Transects: 67,200 meters Grids: 20 Anomalies Investigated: 459	UXO: 1 item MD: 16 lbs
Grenade Range Area	Transects: 38,200 meters Grids: 14 Anomalies Investigated: 258	UXO: 1 item MD: 12 lbs
Mine and Booby Trap Training Area	Instrument-Aided Visual Survey	No UXO or MD
Caves Training Area	No Access	N/A

Table 3-2: UXO Discoveries

Location (Grid or Transect)	Location (X and Y Coordinates)	UXO Nomenclature	Depth (inches)
Eastern Range Area			
E22A3T0001	X = 253176.00000000 Y = 3747140.0000000	37mm APHE	Found on transect during surface clearance activities prior to geophysical operations.
Western Range Area			
W38A2T001	X = 251474.00000000 Y = 3743946.0000000	76mm APHE	Found on transect during surface clearance activities prior to geophysical operations.
W35A2T001	X = 252481.00000000 Y = 3744246.0000000	76mm APHE	Found on transect during surface clearance activities prior to geophysical operations.
W20A2T001	X = 253176.00000000 Y = 3745757.0000000	76mm APHE	Found on transect during surface clearance activities prior to geophysical operations.
W18A2T001	X = 253302.00000000 Y = 3745958.0000000	76mm APHE	Found on transect during geophysical operations.
W27A2T001	X = 252690.00000000 Y = 3745056.0000000	76mm APHE	Found on transect during surface clearance activities prior to geophysical operations.
W27A2T002	X = 252667.00000000 Y = 3745058.0000000	76mm APHE	Found on transect during surface clearance activities prior to geophysical operations.
W29A2T001	X = 252631.00000000 Y = 3744850.0000000	76mm APHE	Found on transect during geophysical operations.
W44A2T001	X = 251404.00000000 Y = 3743332.0000000	2.36-inch Rocket Motor with Fuze	Found on transect during surface clearance activities prior to geophysical operations.
W35A2T002	X = 252581.00000000 Y = 3744241.0000000	76mm APHE	Found on transect during surface clearance activities prior to geophysical operations.
W45A2T001	X = 251385.00000000 Y = 3743221.0000000	105mm Smoke Canister	Found on transect during surface clearance activities prior to geophysical operations.
W35A2T003	X = 252200.00000000 Y = 3744235.0000000	76mm APHE	Found on transect during surface clearance activities prior to geophysical operations.
W30A2T001	X = 252706.00000000 Y = 3744730.0000000	76mm APHE	Found on transect during surface clearance activities prior to geophysical operations.
W38A2T002	X = 252476.00000000 Y = 3743936.0000000	76mm APHE	Found on transect during surface clearance activities prior to geophysical operations.

W27A2G10001	X = 253572.54110500 Y = 3745069.6776000	155mm HE	4
W24A2G10002	X = 252218.70954600 Y = 3745327.3714300	76 mm APHE	12
W31A2G10001	X = 253212.99273700 Y = 3744671.2620400	76 mm APHE	8
Grenade Training Area			
G16AT001	X = 260597.00000000 Y = 3743997.0000000	2.36-inch Rocket	Found on transect during surface clearance activities prior to geophysical operations.

3.2.3.3. A large portion of the Western Range area could not be investigated due to the lack of authorization to access private property. This property is agricultural land located in the north-west portion of the area and is shown on Map 4-2 as a delineated MRS identified as Western Range Area A. A smaller area, identified as Western Range Area E on Map 4-2, also consists of private property where investigation could not be completed. The remaining area was investigated to collect data in accordance with the MEC DQOs described in 2.5.2. Data collection began with the digital geophysical mapping of approximately 213,900 meters of meandering transects, spaced 100 meters apart, using a GPS-integrated Geonics EM61 MK2 metal detector. Data from this survey was used to generate an anomaly density map as shown on Map 3-1. The data shows areas of high density that can be indicative of target areas within a central impact area as well as areas with moderate and light anomaly densities. Grid locations were selected throughout the area as shown on Map 3-1. Grids were geophysically mapped and select anomalies were investigated. Grids were characterized based on the presence of MEC and on MD density. Map 3-2 shows the characterization of each grid positioned in the Western Range Area. As seen on this map, all of the MEC and the majority of the grids with moderate to high MD density were located in the central portion of the Western Range Area. The data suggest a greater probability of encountering MEC in this area (identified as Western Range Area D on Map 4-2) which was likely a target area within a central impact area.

3.2.3.4. All of the area identified as the Eastern Range Area is on Government-owned property. The area was investigated to collect data in accordance with the MEC DQOs described in 2.5.2. Data collection began with the digital geophysical mapping of approximately 67,200 meters of meandering transects, spaced 81 meters apart, using a GPS-integrated Geonics EM61 MK2 metal detector. Data from this survey was used to generate an anomaly density map as shown on Map 3-1. The data shows areas of high, moderate and low anomaly densities. Grid locations were selected throughout the area as shown in Map 3-1. Grids were geophysically mapped and select anomalies were investigated. Grids were characterized based on the presence of MEC and on MD density. Map 3-2 shows the characterization of each grid positioned in the Eastern Range Area. As seen on this map, MEC was located in one grid but all others had no MEC and low MD density. Fourteen of the 20 grids contained no MD and five others contained only a single MD item. Although there is evidence of munitions use in this area, no specific suspected target areas were identified.

3.2.3.5. All of the area identified as the Grenade Range Area is on Government-owned property. The area was investigated to collect data in accordance with the MEC DQOs described in 2.5.2. Data collection began with the digital geophysical mapping of approximately 38,200 meters of meandering transects, spaced nine meters apart, using a GPS-integrated Geonics EM61 MK2 metal detector. Data from this survey was used to generate an anomaly density map as shown on Map 3-1. The data shows areas of high, moderate and low anomaly densities. Grid locations were selected throughout the area as shown on Map 3-1. Grids were geophysically mapped and select anomalies were investigated. Grids were characterized based on the presence of MEC and on MD density. Map 3-2 shows the characterization of each grid positioned in the Grenade Range Area. As seen in this map, MEC was located in one grid but all others had no MEC and low to moderate MD density. Some identifiable MD (such as spent fuzes) is indicative of previous grenade training.

3.2.3.6. Limited rights of entry were granted for the Mine and Booby Trap Training Area (approximately 25 percent of the acreage located on the periphery of the training area). An instrument-assisted visual inspection of approximately 4,000 meters of meandering transects was conducted at the training area. No MEC or MD was encountered during the visual inspection at the Mine and Booby Trap Area; however, a property owner showed the team items which had previously been found within the area from a private parcel where no access was granted. The items were identified as M1 practice mines and smoke canisters. These items are consistent with the mine and booby trap training suspected in the area. Details concerning the investigation at the Mine and Booby Trap Training Area can be found in the *Mine and Booby Trap Training Area Recon Report* (Appendix J).

3.2.3.7. No investigation took place within the Caves Training Area because the property was privately owned and rights of entry could not be established.

3.2.3.8. At the conclusion of all intrusive activities, approximately 436 lbs of MD were identified and removed from the investigated area. The majority of the MD was found in Western Range Area (408 lbs), and the remainder of the anomalies uncovered were non-munitions-related metal scrap such as barbed wire or nails. Maps 3-1, 3-2, and 3-3 show the geophysical anomaly density and remedial design; RI results; and known MEC and MD locations. A complete HA for MEC is included in Section 4.

3.2.4 Demolition and Disposal Operations

All UXO were destroyed in accordance with the Final Approved ESP and Final Work Plan. Following each demolition shot, the demolition hole was inspected, any debris was removed, and the hole was then backfilled. After the demolition was completed, any remaining items were inspected to confirm final classification (i.e., UXO).

3.3 MUNITIONS CONSTITUENTS CHARACTERIZATION

3.3.1 Sampling Summary

3.3.1.1. Environmental samples were collected in two phases during the RI. Surface soil samples were collected in September and October 2013, and following analysis of the surface soil samples, subsurface soil samples were collected in December 2013. No environmental samples were collected in the Mine and Booby Trap Training Area or the Caves Training Area due to a lack of rights-of-entry (ROE). Surface soil samples locations were collected where munitions or MD was found during the RI and in three locations where UXO was previously found (Map 3-4). Soils were categorized into one of two types (A =

coarse alluvial deposits; sandy; B = fine alluvial deposits; clayey) during the RI field effort, based on review of sample locations relative to a soil map and visual observation of soils collected for sampling. Based on the phased approach established for MC sampling, subsurface soil samples were collected at locations where the sample results exceeded PALs (Map 3-5). Background sampling locations were chosen to represent areas where contamination was considered unlikely (Map 3-4).

3.3.1.2. Surface soil samples were collected via the incremental sampling method (see Section 3.3.2 for details). 47 surface soil samples, plus QC samples in the form of triplicates, were collected from SUs where UXO was found or were designated as medium/high MD density grids. Eight surface soil background soil samples were collected. Biased samples were planned at firing point and/or berm locations; however, these range features were not identified during the field effort and no samples biased to these locations were collected.

3.3.1.3. Discrete subsurface soil samples were collected from SUs in which sample results exceeded PALs. 120 subsurface soil samples were collected, plus QC samples in the form of duplicates. Ten discrete subsurface soil samples were collected from the same eight SUs used for surface soil background.

3.3.2 Field Sampling Methods

3.3.2.1 Surface Soil Sampling

3.3.2.1.1. Incremental Sampling was conducted in accordance with the following guidance documents:

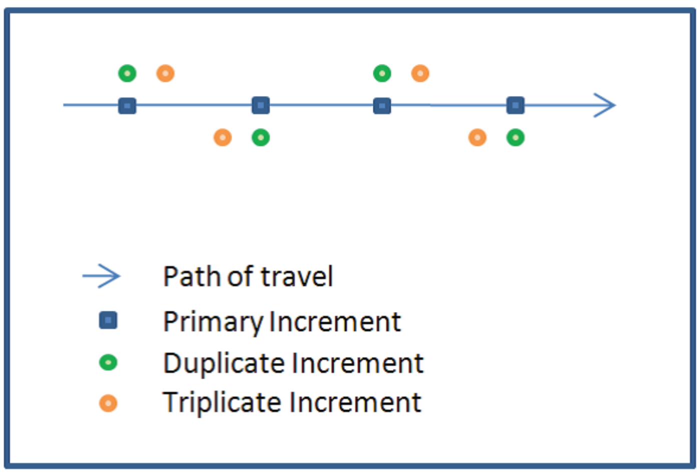
- *Interim guidance for the Implementation of Incremental Sampling of Soil for the Military Munitions Response Program, Environmental and Munitions Center of Expertise Interim Guidance Document* (IGD) 09-02 (USACE, 2009)
- *Incremental Sampling Methodology* (ITRC, 2012)

3.3.2.1.2. Soil samples were collected via incremental sampling method in 50 feet by 50 feet SUs. The location of SUs was determined following the MEC investigation and corresponds with grids where MEC was found or with medium and high MD density grids. Thirty soil increments were collected from each SU by a coring unit which removes the top six inches of soil. SUs were mapped with a handheld GPS unit with the latitude and longitude of all four corners being recorded. Six rows with five increments per row were created within each SU with flags placed to mark increment locations. After the increment rows were created, a UXO technician conducted a survey along the sample rows using a Schonstedt handheld magnetometer. Prior to coring, surface vegetation, roots, and detritus was removed from the soil surface. In instances where an increment location coincided with soil disturbed by a MEC demolition event and sand from the sand bags used for engineering controls remained on the ground surface, the increment was repositioned as close as possible to a location with undisturbed soil.

3.3.2.1.3. Incremental samples were collected via an incremental sampling instrument which collected soil plugs from the surface to 6 inches bgs. Thirty soil plugs representing the thirty increments were collected in sample bags which were labeled with the site name, date, time and sample identification number. Disposable gloves were worn by sampling personnel and discarded when a SU was completed. The incremental sampling instrument was decontaminated between SUs by scrubbing with a low phosphate detergent solution and rinsing with distilled water. The decontamination water was collected in a 5 gallon bucket brought out to the field site. Decontamination water was then stored until laboratory analyses determined it was safe for disposal.

3.3.2.1.4. Ten percent of the SUs were collected in triplicate and treated as distinctly separate samples. Triplicates were collected from grids G11CG1, W3A1G1, W31A2G1, W59A1G1, E21A3G1 and W54A3G1. Each triplicate sample was placed in a separate bag with its own label specifying collection location, date, time and sample identification number. Triplicates were collected by deviating from the increment path by 90 degrees and then also moving parallel. The next triplicate was gathered by reversing the perpendicular and parallel movement. The pattern of triplicate increments along a sampling row may be seen on Figure 3-1.

Figure 3-1: Pattern for Duplicate and Triplicate Collection



3.3.2.1.5. One in twenty of the soil samples were designated and used as Matrix Spike / Matrix Spike Duplicate (MS/MSD) samples. These samples were appropriately labeled on the bags and in the chain of custody. Additionally, temperature blanks were shipped with the samples.

3.3.2.2 Subsurface Soil Sampling

3.3.2.2.1. Discrete subsurface soil samples were collected from SUs where surface soil sample results exceeded the PAL established in the Work Plan for lead. Four samples were collected from each SU with one sample being collected from each quadrant by either a hand auger or trowel. Samples were collected between six to 12 inches bgs after removing the top six inches of soil. Each sample was mapped with a handheld GPS unit.

3.3.2.2.2. Samples were collected in laboratory provided glass jars which were labeled with the site name, date, time and sample identification number. Disposable gloves were worn by sampling personnel and discarded when each sample was completed. The sampling instrument (auger or trowel) was decontaminated between each sample location by scrubbing with a low phosphate detergent solution and rinsing with distilled water. The decontamination water was collected in a five gallon bucket brought out to the field site. Decontamination water was then stored until laboratory analyses determined it was safe for disposal.

3.3.2.2.3. Ten percent of the samples were collected in duplicate and treated as distinctly separate samples. One in twenty of the soil samples were designated and used as MS/MSD samples. These samples were appropriately labeled on the bags and in the chain of custody. Additionally, temperature blanks were shipped with the samples.

3.3.2.3 Anomaly Avoidance

Anomaly avoidance techniques were used during each MC sampling events to ensure the safety of field sampling personnel. All SU and sample locations were cleared during the previous MEC investigation; however, increment and sample locations were again cleared by the UXO Technician prior to sample collection. Background and historic sample locations not located in a previously cleared SU were also cleared by the UXO Technician prior to soil sampling. The UXO Technician had direct field responsibility for MEC avoidance and was responsible for implementing all site safety and health plan requirements, onsite training requirements and recommended changes to levels of Personal Protection Equipment as site conditions warranted. All field personnel, including the UXO technician, had Stop Work Authority for safety conditions.

3.3.3 Chemistry Analysis

The surface soil samples were analyzed for explosives and metals selected based on the munitions or their breakdown products known or suspected to have been used at the Former Camp Maxey (Table 3-3).

Table 3-3: Target Compound List and Target Analyte List

Target Compound List (TCL) Explosives USEPA Method 8330B (with Ring Puck Grinding)	Target Analyte List (TAL) Metals USEPA Method 6010C (no grinding for metals)
1,3,5-Trinitrobenzene (TNB)	Aluminum (Al)
1,3-Dinitrobenzene (DNB)	Antimony (Sb)
2,4-Dinitrotoluene (DNT)	Barium (Ba)
2,6- DNT	Copper (Cu)
2-A-4,6-DNT	Magnesium (Mg)
2,4,6-Trinitrotoluene (TNT)	Nickel (Ni)
2-Nitrotoluene (NT)	Lead (Pb)
3-NT	Zinc (Zn)
4-A-2,6-DNT	
4-NT	
2,4,6-Trinitrophenyl-N-methylnitramine (tetryl)	
1,3,5,7-tetranitro-1,3,5,7-tetrazocane (HMX)	
3,5-Dinitroaniline (3,5-DNA)	
Cyclotrimethylenetrinitramine (RDX)	
Nitrobenzene	
Nitroglycerine (NG)	
Pentaerythrite Tetranitrate (PETN)	

Table 3-4: Project Action Limits

Chemical Name	Result Unit	Background			Human Health			Project Action Limit		TCEQ Ecological Benchmark[de]
			Sample Averages[a]		TRRP Tier 1 Residential Soil PCLs (June 2012)					
		Texas Median Background Concentration	Soil Class A (Course Alluvial)	Soil Class B (Fine Alluvial)	$^{Tot}Soil_{Comb}$ (30-acre source)	$^{GW}Soil_{Ing}$ (30-acre source)	Lesser of two	Greater of Human Health Risk-Based Value and Site-Specific Background	Basis	
Aluminum	mg/kg	30,000	2,400	2,500	64,000	86,000	64,000	64,000	HH-S	soil pH<5.5
Antimony	mg/kg	1.0	0.53[b]	Not Detected	15	2.7	2.7	2.7	HH-GW	5
Barium	mg/kg	300	51	51	8,100	220	220	220	HH-GW	330
Copper	mg/kg	15	1.9	1.4	550	520	520	520	HH-GW	70
Lead	mg/kg	15	7.6	9.0	500	1.5 / 90[f]	90	90	HH-GW	120
Magnesium	mg/kg	4,902	323	228	N/A	N/A	N/A	323 (A)/228(B)	SS-BG	N/A
Nickel	mg/kg	10	2.6	2.0	840	79	79	79	HH-GW	38
Zinc	mg/kg	30	7.7	6.3	9,900	1,200	1,200	1,200	HH-GW	120
1,3,5-Trinitrobenzene	mg/kg	--	--	--	0.91	--	--	0.91	--	6.6
1,3-Dinitrobenzene	mg/kg	--	--	--	0.10[c]	--	--	0.10[c]	--	0.073
2,4,6-Trinitrotoluene	mg/kg	--	--	--	0.10[c]	--	--	0.10[c]	--	6.4
2,4-Dinitrotoluene	mg/kg	--	--	--	0.10[c]	--	--	0.10[c]	--	2.5
2,6-Dinitrotoluene	mg/kg	--	--	--	0.10[c]	--	--	0.10[c]	--	1.8
2-Amino-4,6-dinitrotoluene	mg/kg	--	--	--	0.10[c]	--	--	0.10[c]	--	10
3,5-Dinitroaniline	mg/kg	--	--	--	N/A	--	--	N/A	--	N/A
4-Amino-2,6-dinitrotoluene	mg/kg	--	--	--	0.20[c]	--	--	0.20[c]	--	3.6
HMX	mg/kg	--	--	--	1.2	--	--	1.2	--	27
Nitroglycerin	mg/kg	--	--	--	0.20[c]	--	--	0.20[c]	--	71
PETN	mg/kg	--	--	--	1,200	--	--	1,200	--	100
RDX	mg/kg	--	--	--	2.0[c]	--	--	2.0[c]	--	7.5
Tetryl	mg/kg	--	--	--	0.55	--	--	0.55	--	0.99

Chemical Name	Result Unit	Background			Human Health			Project Action Limit		TCEQ Ecological Benchmark[de]
		Texas Median Background Concentration	Sample Averages[a]		TRRP Tier 1 Residential Soil PCLs (June 2012)					
			Soil Class A (Course Alluvial)	Soil Class B (Fine Alluvial)	$^{Tot}Soil_{Comb}$ (30-acre source)	$^{GW}Soil_{Ing}$ (30-acre source)	Lesser of two	Greater of Human Health Risk-Based Value and Site-Specific Background	Basis	
2-Nitrotoluene	mg/kg	--	--	--	0.20[c]	--	--	0.20[c]	--	9.9
4-Nitrotoluene	mg/kg	--	--	--	0.22	--	--	0.22	--	22
3-Nitrotoluene	mg/kg	--	--	--	0.92	--	--	0.92	--	12

Notes:

a = Background averages were calculated from background samples corresponding to either Soil Class A or Soil Class B.

b = Analyte only detected in one background sample. Average could not be determined and non-detect samples were not compared to single background value.

c = In these cases, the Project Action Limit (PAL) is the Analytical Method LOQ instead of the listed TRRP value. The TRRP allows for media-specific PALs to be established based on the analytical limitations (30 TAC 350.78(c)). TRRP states that if a critical PAL for a COC is less than the Method Quantitation Limit (MQL), then the MQL is the critical PAL for that COC. In this case, the MQLs are the Analytical Method LOQs.

d = For metals, the TCEQ ecological benchmarks for soil were used. If more recent USEPA Ecological Soil Screening Levels (EcoSSLs) are available, those values were used.

e = For explosives, the minimum NOAEL available for soil was used.

f = A Tier 2 PCL of 90 milligrams per kilogram (mg/kg) was calculated for lead using site specific inputs and the TRRP Tier 2 equations.

Table 3-5: Surface Soil Sample Results

Analytical Method	Chemical Name	Result Unit	CM-SU001			CM-SU002			CM-SU003			CM-SU004			CM-SU004A		
			9/23/2013			9/23/2013			9/23/2013			9/23/2013			9/23/2013		
			Soil Class A			Soil Class A			Soil Class A			Soil Class A			Soil Class A		
			Primary			Primary			Primary			Primary			Duplicate		
			Result	Qualifiers Lab	Qualifiers Val	Result	Qualifiers Lab	Qualifiers Val	Result	Qualifiers Lab	Qualifiers Val	Result	Qualifiers Lab	Qualifiers Val	Result	Qualifiers Lab	Qualifiers Val
SW846 6010B	Aluminum	mg/kg	6000		J	3300		J	2400		J	1400		J	1700		J
SW846 6010B	Antimony	mg/kg	0.59	U	UJ	0.59	U	UJ	0.60	U	UJ	0.60	U	UJ	0.56	U	UJ
SW846 6010B	Barium	mg/kg	30		J	63		J	66		J	47		J	48		J
SW846 6010B	Copper	mg/kg	2.8	J	J	2.8	J	J	2.7	J	J	1.7	J	J	1.9	J	J
SW846 6010B	Lead	mg/kg	10		J-	8.8		J-	5.6		J-	6.1		J-	8.5		J-
SW846 6010B	Magnesium	mg/kg	510		J	340		J	250		J	150		J	170		J
SW846 6010B	Nickel	mg/kg	4.7		J	3.3	J	J	3.3	J	J	1.9	J	J	2.2	J	J
SW846 6010B	Zinc	mg/kg	8.5		J	11		J	11		J	6.7	J	J	6.9	J	J
SW846 8330B	1,3,5-Trinitrobenzene	mg/kg	0.039	U		0.04	U		0.04	U		0.04	U		0.038	U	
SW846 8330B	1,3-Dinitrobenzene	mg/kg	0.039	U		0.04	U		0.04	U		0.04	U		0.038	U	
SW846 8330B	2,4,6-Trinitrotoluene	mg/kg	0.039	U		0.04	U		0.04	U		0.04	U		0.038	U	
SW846 8330B	2,4-Dinitrotoluene	mg/kg	0.039	U		0.04	U		0.04	U		0.04	U		0.038	U	
SW846 8330B	2,6-Dinitrotoluene	mg/kg	0.039	U		0.025	J	J	0.04	U	J	0.04	U		0.038	U	
SW846 8330B	2-Amino-4,6-dinitrotoluene	mg/kg	0.039	U		0.04	U		0.04	U		0.04	U		0.038	U	
SW846 8330B	3,5-Dinitroaniline	mg/kg	0.039	U		0.04	U		0.04	U		0.04	U		0.038	U	
SW846 8330B	4-Amino-2,6-dinitrotoluene	mg/kg	0.039	U		0.04	U		0.04	U		0.04	U		0.038	U	
SW846 8330B	HMX	mg/kg	0.039	U		0.04	U		0.04	U		0.04	U		0.038	U	
SW846 8330B	Nitroglycerin	mg/kg	0.39	U		0.4	U		0.4	U		0.4	U		0.38	U	
SW846 8330B	PETN	mg/kg	0.98	UQ		1.0	UQ		0.99	UQ		0.99	UQ		0.96	UQ	
SW846 8330B	RDX	mg/kg	0.078	U		0.08	U		0.079	U		0.079	U		0.077	U	
SW846 8330B	Tetryl	mg/kg	0.078	U		0.08	U		0.079	U		0.079	U		0.077	U	
SW846 8330B	2-Nitrotoluene	mg/kg	0.078	U		0.08	U		0.079	U		0.079	U		0.077	U	
SW846 8330B	4-Nitrotoluene	mg/kg	0.098	U		0.10	U		0.099	U		0.099	U		0.096	U	
SW846 8330B	3-Nitrotoluene	mg/kg	0.78	U		0.08	U		0.079	U		0.079	U		0.077	U	

Analytical Method	Chemical Name	Result Unit	CM-SU004B			CM-SU005			CM-SU006			CM-SU007			CM-SU008			CM-SU008A		
			9/23/2013			9/23/2013			9/24/2013			9/24/2013			9/24/2013			9/24/2013		
			Soil Class A			Soil Class A			Soil Class B			Soil Class B			Soil Class A			Soil Class A		
			Triplicate			Primary			Primary			Primary			Primary			Duplicate		
			Result	Qualifiers Lab	Qualifiers Val	Result	Qualifiers Lab	Qualifiers Val	Result	Qualifiers Lab	Qualifiers Val	Result	Qualifiers Lab	Qualifiers Val	Result	Qualifiers Lab	Qualifiers Val	Result	Qualifiers Lab	Qualifiers Val
SW846 6010B	Aluminum	mg/kg	1800		J	2600		J	3500		J	4700		J	3500		J	3100		J
SW846 6010B	Antimony	mg/kg	0.60	U	UJ	0.58	U	UJ	0.59	U	UJ	0.58	U	UJ	0.58	U	UJ	0.59	U	UJ
SW846 6010B	Barium	mg/kg	50		J	32		J	120		J	120		J	78		J	75		J
SW846 6010B	Copper	mg/kg	1.9	J	J	3.6	J	J	2.0	J	J	2.6	J	J	1.9	J	J	1.6	J	J
SW846 6010B	Lead	mg/kg	6.2		J-	5.5		J-	12		J-	17		J-	13		J-	11		J-
SW846 6010B	Magnesium	mg/kg	180		J	230		J	320		J	430	D	J	320		J	290		J
SW846 6010B	Nickel	mg/kg	2.2	J	J	4.8		J	3.4	J	J	4.3		J	3.0	J	J	2.8	J	J
SW846 6010B	Zinc	mg/kg	7.2	J	J	15		J	7.3	J	J	8.1		J	8.0		J	7.4	J	J
SW846 8330B	1,3,5-Trinitrobenzene	mg/kg	0.038	U		0.039	U		0.037	U		0.038	U		0.04	U		0.039	U	
SW846 8330B	1,3-Dinitrobenzene	mg/kg	0.038	U		0.039	U		0.037	U		0.038	U		0.04	U		0.039	U	
SW846 8330B	2,4,6-Trinitrotoluene	mg/kg	0.038	U		0.039	U		0.037	U		0.038	U		0.04	U		0.039	U	
SW846 8330B	2,4-Dinitrotoluene	mg/kg	0.038	U		0.039	U		0.037	U		0.038	U		0.04	U		0.039	U	
SW846 8330B	2,6-Dinitrotoluene	mg/kg	0.038	U		0.039	U		0.052	J	J	0.038	U		0.053	J	J	0.079	J	J
SW846 8330B	2-Amino-4,6-dinitrotoluene	mg/kg	0.038	U		0.039	U		0.037	U		0.038	U		0.04	U		0.039	U	
SW846 8330B	3,5-Dinitroaniline	mg/kg	0.038	U		0.039	U		0.037	U		0.038	U		0.04	U		0.039	U	
SW846 8330B	4-Amino-2,6-dinitrotoluene	mg/kg	0.038	U		0.039	U		0.037	U		0.038	U		0.04	U		0.039	U	
SW846 8330B	HMX	mg/kg	0.038	U		0.039	U		0.037	U		0.038	U		0.04	U		0.039	U	
SW846 8330B	Nitroglycerin	mg/kg	0.38	U		0.39	U		0.37	U		0.38	U		0.4	U		0.39	U	
SW846 8330B	PETN	mg/kg	0.96	UQ		0.99	UQ		0.92	UQ		0.95	UQ		1.0	UQ		0.97	UQ	
SW846 8330B	RDX	mg/kg	0.077	U		0.079	U		0.073	U		0.076	U		0.08	U		0.078	U	
SW846 8330B	Tetryl	mg/kg	0.077	U		0.079	U		0.073	U		0.076	U		0.08	U		0.078	U	
SW846 8330B	2-Nitrotoluene	mg/kg	0.077	U		0.079	U		0.073	U		0.076	U		0.08	U		0.078	U	
SW846 8330B	4-Nitrotoluene	mg/kg	0.096	U		0.099	U		0.092	U		0.095	U		0.1	U		0.097	U	
SW846 8330B	3-Nitrotoluene	mg/kg	0.077	U		0.079	U		0.073	U		0.076	U		0.08	U		0.11	J	J

Notes:

[a] = Background averages were calculated from background samples corresponding to either Soil Class A or Soil Class B.

[b] = Analyte only detected in one background sample. Average could not be determined and non-detect samples were not compared to single background value.

[c] = In these cases, the Project Action Limit (PAL) is the Analytical Method LOQ instead of the listed TRRP value. The TRRP allows for media-specific PALs to be established based on the analytical limitations (30 TAC 350.78(c)).
TRRP states that if a critical PAL for a COC is less than the Method Quantitation Limit (MQL), then the MQL is the critical PAL for that COC. In this case, the MQLs are the Analytical Method LOQs.

[d] = For metals, the TCEQ ecological benchmarks for soil were used. If more recent USEPA EcoSSLs are available, those values were used.

[e] = For explosives, the minimum NOAEL available for soil was used.

Laboratory Qualifiers:
J = Estimated: The analyte was positively identified; the quantitation is an estimation
M = Manual integrated compound
Q = One or more quality criteria failed
U = Undetected at the Limit of Detection

Validation Qualifiers:
J+ = Data are qualified as estimated; with a high bias likely to occur.
J- = Data are qualified as estimated; with a low bias likely to occur.
J = Data are qualified as estimated; it is not posible to assess the direction of the potential bias.
U = Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
R = Data are qualified as rejected. There is a significant potential for the reporting of false negatives or false positives.
UJ = Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

= exceeds PALs using site specific backround data only
= exceeds PALs using both site specific and Texas backround data

Table 3-5: Surface Soil Sample Results

Analytical Method	Chemical Name	Result Unit	CM-SU008B			CM-SU009			CM-SU0010			CM-SU0011			CM-SU0012			CM-SU0013			CM-SU0014			CM-SU0015			CM-SU0016			CM-SU0017			CM-SU0018		
			9/24/2013			9/24/2013			9/24/2013			9/25/2013			9/25/2013			9/25/2013			9/25/2013			9/25/2013			9/26/2013			9/26/2013			9/26/2013		
			Soil Class A			Soil Class B			Soil Class A			Soil Class B			Soil Class A			Soil Class B			Soil Class A			Soil Class A			Soil Class A			Soil Class A			Soil Class A		
			Triplicate			Primary			Primary			Primary			Primary			Primary			Primary			Primary			Primary			Primary			Primary		
			Result	Qualifiers		Result	Qualifiers		Result	Qualifiers		Result	Qualifiers		Result	Qualifiers		Result	Qualifiers		Result	Qualifiers		Result	Qualifiers		Result	Qualifiers		Result	Qualifiers		Result	Qualifiers	
				Lab	Val		Lab	Val		Lab	Val		Lab	Val		Lab	Val		Lab	Val		Lab	Val		Lab	Val		Lab	Val		Lab	Val		Lab	Val
SW846 6010B	Aluminum	mg/kg	3900		J	2300		J	2500	J	J	3600			3000	J		5100			2700			3200			4600			2900			8900		
SW846 6010B	Antimony	mg/kg	0.55	U	UJ	0.56	U	UJ	0.55	UJ	UJ	0.57	U	UJ	0.57	UJ	UJ	0.58	U	UJ	0.58	U	UJ	0.59	U	UJ	0.56	U	UJ	0.56	U	UJ	0.62	U	UJ
SW846 6010B	Barium	mg/kg	94		J	46		J	78	J	J	100			41			47			49			47			110			85			180		
SW846 6010B	Copper	mg/kg	2.0	J	J	1.5	J	J	3.1	J	J	3.9	J	J	2.9	J	J	2.5	J	J	2.0	J	J	2.0	J	J	4.8			3.9	J	J	9.5		
SW846 6010B	Lead	mg/kg	14		J-	8.3		J-	42	J	J-	9.3			7.8			13			9.9			12			13			11			21		
SW846 6010B	Magnesium	mg/kg	350		J	340		J	310	J	J	870			780			520			330			350			1400			370			2700		
SW846 6010B	Nickel	mg/kg	3.2	J	J	2.8	J	J	3.5	J	J	6.1			3.6	J	J	3.8			2.9	J	J	2.9	J	J	8.2			4.3			13		
SW846 6010B	Zinc	mg/kg	9.4		J	7.2	J	J	9.7	J	J	12			9.5			9.5			7.1	J	J	7.7	J	J	16			9.4			23		
SW846 8330B	1,3,5-Trinitrobenzene	mg/kg	0.04	UQ		0.039	U		0.038	U		0.038	U		0.037	U		0.038	U		0.039	U		0.038	U		0.036	U		0.039	U		0.038	U	
SW846 8330B	1,3-Dinitrobenzene	mg/kg	0.04	U		0.039	U		0.038	U		0.038	U		0.037	U		0.038	U		0.039	U		0.038	U		0.036	U		0.039	U		0.038	U	
SW846 8330B	2,4,6-Trinitrotoluene	mg/kg	0.04	U		0.039	U		0.038	U		0.038	U		0.037	U		0.038	U		0.039	U		0.038	U		0.036	U		0.039	U		0.038	U	
SW846 8330B	2,4-Dinitrotoluene	mg/kg	0.04	U		0.039	U		0.038	U		0.038	U		0.037	U		0.038	U		0.039	U		0.038	U		0.036	U		0.039	U		0.038	U	
SW846 8330B	2,6-Dinitrotoluene	mg/kg	0.029	J	J	0.022	J	J	0.039	J	J	0.038	U		0.018	J	J	0.088	J	J	0.061	J	J	0.072	J	J	0.024	J	J	0.039	U		0.078	J	J
SW846 8330B	2-Amino-4,6-dinitrotoluene	mg/kg	0.04	U		0.039	U		0.038	U		0.038	U		0.037	UJ	UJ	0.038	U		0.039	U		0.038	U		0.036	U		0.039	U		0.038	U	
SW846 8330B	3,5-Dinitroaniline	mg/kg	0.04	U		0.039	U		0.038	U		0.038	U		0.037	U		0.038	U		0.039	U		0.038	U		0.036	U		0.039	U		0.038	U	
SW846 8330B	4-Amino-2,6-dinitrotoluene	mg/kg	0.04	U		0.039	U		0.038	U		0.038	U		0.037	U		0.038	U		0.039	U		0.038	U		0.036	U		0.039	U		0.038	U	
SW846 8330B	HMX	mg/kg	0.04	U		0.039	U		0.038	U		0.038	U		0.037	U		0.038	U		0.039	U		0.038	U		0.036	U		0.039	U		0.038	U	
SW846 8330B	Nitroglycerin	mg/kg	0.04	U		0.039	U		0.038	U		0.38	U		0.37	U		0.38	U		0.39	U		0.38	U		0.36	U		0.39	U		0.38	U	
SW846 8330B	PETN	mg/kg	1.0	UQ		0.97	UQ		0.94	UQ		0.96	UQ		0.92	UQ		0.95	UQ		0.97	UQ		0.94	UQ		0.91	UQ		0.97	UQ		0.94	UQ	
SW846 8330B	RDX	mg/kg	0.08	U		0.078	U		0.076	U		0.076	U		0.074	U		0.076	U		0.078	U		0.075	U		0.073	U		0.078	U		0.075	U	
SW846 8330B	Tetryl	mg/kg	0.08	U		0.078	U		0.076	U		0.076	U		0.074	U		0.076	U		0.078	U		0.075	U		0.073	U		0.078	U		0.075	U	
SW846 8330B	2-Nitrotoluene	mg/kg	0.08	U		0.078	U		0.076	U		0.076	U		0.074	U		0.076	U		0.078	U		0.075	U		0.073	U		0.078	U		0.075	U	
SW846 8330B	4-Nitrotoluene	mg/kg	0.1	U		0.097	U		0.094	U		0.096	U		0.092	U		0.095	U		0.097	U		0.094	U		0.091	U		0.097	U		0.094	U	
SW846 8330B	3-Nitrotoluene	mg/kg	0.092	J	J	0.078	U		0.076	U		0.076	U		0.074	U		0.076	U		0.078	U		0.075	U		0.073	U		0.078	U		0.075	U	

Notes:

[a] = Background averages were calculated from background samples corresponding to either Soil Class A or Soil Class B.

[b] = Analyte only detected in one background sample. Average could not be determined and non-detect samples were not compared to single background value.

[c] = In these cases, the Project Action Limit (PAL) is the Analytical Method LOQ instead of the listed TRRP value. The TRRP allows for media-specific PALs to be established based on the analytical limitations (30 TAC 350.78(c)).
TRRP states that if a critical PAL for a COC is less than the Method Quantitation Limit (MQL), then the MQL is the critical PAL for that COC. In this case, the MQLs are the Analytical Method LOQs.

[d] = For metals, the TCEQ ecological benchmarks for soil were used. If more recent USEPA EcoSSLs are available, those values were used.

[e] = For explosives, the minimum NOAEL available for soil was used.

Laboratory Qualifiers:
J = Estimated: The analyte was positively identified; the quantitation is an estimation
M = Manual integrated compound
Q = One or more quality criteria failed
U = Undetected at the Limit of Detection

Validation Qualifiers:
J+ = Data are qualified as estimated; with a high bias likely to occur.
J- = Data are qualified as estimated; with a low bias likely to occur.
J = Data are qualified as estimated; it is not posible to assess the direction of the potential bias.
U = Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
R = Data are qualified as rejected. There is a significant potential for the reporting of false negatives or false positives.
UJ = Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

(yellow) = exceeds PALs using site specific backround data only
(purple) = exceeds PALs using both site specific and Texas backround data

Table 3-5: Surface Soil Sample Results

Analytical Method	Chemical Name	Result Unit	CM-SU0018A			CM-SU0018B			CM-SU0019			CM-SU0020			CM-SU0021		
			9/26/2013			9/26/2013			9/26/2013			9/26/2013			9/26/2013		
			Soil Class A			Soil Class A			Soil Class A			Soil Class B			Soil Class A		
			Duplicate			Triplicate			Primary			Primary			Primary		
			Result	Qualifiers		Result	Qualifiers		Result	Qualifiers		Result	Qualifiers		Result	Qualifiers	
				Lab	Val		Lab	Val		Lab	Val		Lab	Val		Lab	Val
SW846 6010B	Aluminum	mg/kg	9100			8800			1800			2000			1300		
SW846 6010B	Antimony	mg/kg	0.63	U	UJ	0.59	U	UJ	0.58	U	UJ	0.55	U	UJ	0.59	U	UJ
SW846 6010B	Barium	mg/kg	170			190			75			93			44		
SW846 6010B	Copper	mg/kg	9.3			9.6			1.6	J	J	1.8	J	J	1.6	J	J
SW846 6010B	Lead	mg/kg	21			23			7.1			10			5.4		
SW846 6010B	Magnesium	mg/kg	2700			2700			290			320			180		
SW846 6010B	Nickel	mg/kg	12			14			3.0	J	J	3.1	J	J	2.0	J	J
SW846 6010B	Zinc	mg/kg	23			23			10			8.2			5.1	J	J
SW846 8330B	1,3,5-Trinitrobenzene	mg/kg	0.04	U		0.038	U		0.038	U		0.039	U		0.039	U	
SW846 8330B	1,3-Dinitrobenzene	mg/kg	0.04	U		0.038	U		0.038	U		0.039	U		0.039	U	
SW846 8330B	2,4,6-Trinitrotoluene	mg/kg	0.04	U		0.038	U		0.038	U		0.039	U		0.039	U	
SW846 8330B	2,4-Dinitrotoluene	mg/kg	0.04	U		0.038	U		0.038	U		0.039	U		0.039	U	
SW846 8330B	2,6-Dinitrotoluene	mg/kg	0.088	J	J	0.045	J	J	0.038	U		0.02	J	J	0.023	J	J
SW846 8330B	2-Amino-4,6-dinitrotoluene	mg/kg	0.04	U		0.038	U		0.038	U		0.039	U		0.039	U	
SW846 8330B	3,5-Dinitroaniline	mg/kg	0.04	U		0.038	U		0.038	U		0.039	U		0.039	U	
SW846 8330B	4-Amino-2,6-dinitrotoluene	mg/kg	0.04	U		0.038	U		0.038	U		0.039	U		0.039	U	
SW846 8330B	HMX	mg/kg	0.04	U		0.038	U		0.038	U		0.039	U		0.039	U	
SW846 8330B	Nitroglycerin	mg/kg	0.4	U		0.38	U		0.38	U		0.39	U		0.39	U	
SW846 8330B	PETN	mg/kg	1	UQ		0.94	UQ		0.95	UQ		0.97	UQ		0.98	UQ	
SW846 8330B	RDX	mg/kg	0.08	U		0.075	U		0.076	U		0.078	U		0.079	U	
SW846 8330B	Tetryl	mg/kg	0.08	U		0.075	U		0.076	U		0.078	U		0.079	U	
SW846 8330B	2-Nitrotoluene	mg/kg	0.08	U		0.075	U		0.076	U		0.078	U		0.079	U	
SW846 8330B	4-Nitrotoluene	mg/kg	0.1	U		0.094	U		0.095	U		0.097	U		0.098	U	
SW846 8330B	3-Nitrotoluene	mg/kg	0.08	U		0.075	U		0.076	U		0.078	U		0.079	U	

Analytical Method	Chemical Name	Result Unit	CM-SU0022			CM-SU0023			CM-SU0024			CM-SU0025			CM-SU0026			CM-SU0027		
			9/27/2013			9/27/2013			9/27/2013			9/27/2013			9/29/2013			9/29/2013		
			Soil Class A			Soil Class A			Soil Class B			Soil Class A			Soil Class A			Soil Class A		
			Primary			Primary			Primary			Primary			Primary			Primary		
			Result	Qualifiers		Result	Qualifiers		Result	Qualifiers		Result	Qualifiers		Result	Qualifiers		Result	Qualifiers	
				Lab	Val		Lab	Val		Lab	Val		Lab	Val		Lab	Val		Lab	Val
SW846 6010B	Aluminum	mg/kg	1800			1200			3000	J		2400			3500			3300		
SW846 6010B	Antimony	mg/kg	0.58	U	UJ	0.59	U	UJ	0.58	UJ	UJ	0.58	U	UJ	0.60	U	UJ	0.56	U	UJ
SW846 6010B	Barium	mg/kg	62			34			110			59			65			74		
SW846 6010B	Copper	mg/kg	2.4	J	J	1.5	J	J	1.9	J	J	1.5	J	J	2.3	J	J	2.0	J	J
SW846 6010B	Lead	mg/kg	6.7			4.3			14			9.1			11			11		
SW846 6010B	Magnesium	mg/kg	320			150			370			310			460			470		
SW846 6010B	Nickel	mg/kg	3.6	J	J	1.9	J	J	2.7	J	J	2.3	J	J	3.5	J	J	4.1		
SW846 6010B	Zinc	mg/kg	9.4			5.8	J	J	9.3			8.4			11			15		
SW846 8330B	1,3,5-Trinitrobenzene	mg/kg	0.037	U		0.037	U		0.037	U		0.039	U		0.039	U		0.038	U	
SW846 8330B	1,3-Dinitrobenzene	mg/kg	0.037	U		0.037	U		0.037	U		0.039	U		0.039	U		0.038	U	
SW846 8330B	2,4,6-Trinitrotoluene	mg/kg	0.037	U		0.037	U		0.037	U		0.039	U		0.039	U		0.038	U	
SW846 8330B	2,4-Dinitrotoluene	mg/kg	0.037	U		0.037	U		0.037	U		0.039	U		0.039	U		0.038	U	
SW846 8330B	2,6-Dinitrotoluene	mg/kg	0.037	U		0.037	U		0.099		J	0.089	J	J	0.039	U		0.075	J	J
SW846 8330B	2-Amino-4,6-dinitrotoluene	mg/kg	0.037	U		0.037	U		0.037	U		0.039	U		0.039	U		0.038	U	
SW846 8330B	3,5-Dinitroaniline	mg/kg	0.037	U		0.037	U		0.037	U		0.039	U		0.039	U		0.038	U	
SW846 8330B	4-Amino-2,6-dinitrotoluene	mg/kg	0.037	U		0.037	U		0.037	U		0.039	U		0.039	U		0.038	U	
SW846 8330B	HMX	mg/kg	0.037	U		0.037	U		0.037	U		0.039	U		0.039	U		0.038	U	
SW846 8330B	Nitroglycerin	mg/kg	0.37	U		0.37	U		0.37	U		0.39	U		0.39	U		0.38	U	
SW846 8330B	PETN	mg/kg	0.94	UQ		0.91	UQ		0.94	UQ		0.97	UQ		0.98	U		0.95	U	
SW846 8330B	RDX	mg/kg	0.075	U		0.073	U		0.075	U		0.078	U		0.078	U		0.076	U	
SW846 8330B	Tetryl	mg/kg	0.075	U		0.073	U		0.075	U		0.078	U		0.078	U		0.076	U	
SW846 8330B	2-Nitrotoluene	mg/kg	0.075	U		0.073	U		0.075	U		0.078	U		0.078	U		0.096	J	J
SW846 8330B	4-Nitrotoluene	mg/kg	0.094	U		0.091	U		0.094	U		0.054	JM	J	0.098	U		0.095	U	
SW846 8330B	3-Nitrotoluene	mg/kg	0.075	U		0.073	U		0.075	U		0.078	U		0.078	U		0.076	U	

Notes:

[a] = Background averages were calculated from background samples corresponding to either Soil Class A or Soil Class B.

[b] = Analyte only detected in one background sample. Average could not be determined and non-detect samples were not compared to single background value.

[c] = In these cases, the Project Action Limit (PAL) is the Analytical Method LOQ instead of the listed TRRP value. The TRRP allows for media-specific PALs to be established based on the analytical limitations (30 TAC 350.78(c)). TRRP states that if a critical PAL for a COC is less than the Method Quantitation Limit (MQL), then the MQL is the critical PAL for that COC. In this case, the MQLs are the Analytical Method LOQs.

[d] = For metals, the TCEQ ecological benchmarks for soil were used. If more recent USEPA EcoSSLs are available, those values were used.

[e] = For explosives, the minimum NOAEL available for soil was used.

Laboratory Qualifiers:

J = Estimated: The analyte was positively identified; the quantitation is an estimation

M = Manual integrated compound

Q = One or more quality criteria failed

U = Undetected at the Limit of Detection

Validation Qualifiers:

J+ = Data are qualified as estimated; with a high bias likely to occur.

J- = Data are qualified as estimated; with a low bias likely to occur.

J = Data are qualified as estimated; it is not posible to assess the direction of the potential bias.

U = Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

R = Data are qualified as rejected. There is a significant potential for the reporting of false negatives or false positives.

UJ = Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

= exceeds PALs using site specific backround data only

= exceeds PALs using both site specific and Texas backround data

Table 3-5: Surface Soil Sample Results

Analytical Method	Chemical Name	Result Unit	CM-SU0028			CM-SU0029			CM-SU0030			CM-SU0031		
			9/29/2013			9/29/2013			9/30/2013			9/30/2013		
			Soil Class A			Soil Class A			Soil Class A			Soil Class A		
			Primary			Primary			Primary			Primary		
			Result	Qualifiers Lab	Qualifiers Val	Result	Qualifiers Lab	Qualifiers Val	Result	Qualifiers Lab	Qualifiers Val	Result	Qualifiers Lab	Qualifiers Val
SW846 6010B	Aluminum	mg/kg	5300			2000			2000			4900		
SW846 6010B	Antimony	mg/kg	0.58	U	UJ	0.58	U	UJ	0.55	U	UJ	0.56	U	UJ
SW846 6010B	Barium	mg/kg	110			30			37			52		
SW846 6010B	Copper	mg/kg	3.9	J	J	1.5	J		1.5	J	J	3.1	J	J
SW846 6010B	Lead	mg/kg	14			6.6			5.5			9.3		
SW846 6010B	Magnesium	mg/kg	780			240			220			450		
SW846 6010B	Nickel	mg/kg	8.3			2.0	J		2.4	J	J	2.9	J	J
SW846 6010B	Zinc	mg/kg	16			5.7	J		5.3	J	J	9.2		
SW846 8330B	1,3,5-Trinitrobenzene	mg/kg	0.038	U		0.039	U		0.039	U		0.04	U	
SW846 8330B	1,3-Dinitrobenzene	mg/kg	0.038	U		0.039	U		0.039	U		0.04	U	
SW846 8330B	2,4,6-Trinitrotoluene	mg/kg	0.038	U		0.039	U		0.039	U		0.04	U	
SW846 8330B	2,4-Dinitrotoluene	mg/kg	0.038	U		0.039	U		0.039	U		0.04	U	
SW846 8330B	2,6-Dinitrotoluene	mg/kg	0.035	J	J	0.039	U		0.039	U		0.04	U	
SW846 8330B	2-Amino-4,6-dinitrotoluene	mg/kg	0.038	U		0.039	U		0.039	U		0.04	U	
SW846 8330B	3,5-Dinitroaniline	mg/kg	0.038	U		0.039	U		0.039	U		0.04	U	
SW846 8330B	4-Amino-2,6-dinitrotoluene	mg/kg	0.038	U		0.039	U		0.039	U		0.04	UM	
SW846 8330B	HMX	mg/kg	0.038	U		0.039	U		0.039	U		0.04	U	
SW846 8330B	Nitroglycerin	mg/kg	0.38	U		0.39	U		0.39	U		0.4	U	
SW846 8330B	PETN	mg/kg	0.96	U		0.98	U		0.98	U		0.99	U	
SW846 8330B	RDX	mg/kg	0.077	U		0.078	U		0.078	U		0.079	U	
SW846 8330B	Tetryl	mg/kg	0.077	U		0.078	U		0.078	U		0.079	U	
SW846 8330B	2-Nitrotoluene	mg/kg	0.077	U		0.078	U		0.078	U		0.079	U	
SW846 8330B	4-Nitrotoluene	mg/kg	0.096	U		0.098	U		0.098	U		0.099	U	
SW846 8330B	3-Nitrotoluene	mg/kg	0.077	U		0.078	U		0.078	U		0.079	U	

Analytical Method	Chemical Name	Result Unit	CM-SU0032			CM-SU0033			CM-SU0034			CM-SU0035		
			9/30/2013			9/30/2013			9/30/2013			10/1/2013		
			Soil Class A			Soil Class A			Soil Class B			Soil Class A		
			Primary			Primary			Primary			Primary		
			Result	Qualifiers Lab	Qualifiers Val	Result	Qualifiers Lab	Qualifiers Val	Result	Qualifiers Lab	Qualifiers Val	Result	Qualifiers Lab	Qualifiers Val
SW846 6010B	Aluminum	mg/kg	4300			2300			13000			2000		
SW846 6010B	Antimony	mg/kg	0.59	U	UJ	0.57	U	UJ	0.57	U	UJ	0.57	U	UJ
SW846 6010B	Barium	mg/kg	60			64			110			22		
SW846 6010B	Copper	mg/kg	15			1.9	J	J	7.0			1.2	J	J
SW846 6010B	Lead	mg/kg	19			9.6			19			5.0		
SW846 6010B	Magnesium	mg/kg	530			270			1300			190		
SW846 6010B	Nickel	mg/kg	4.0			2.7	J	J	9.3			1.5	J	J
SW846 6010B	Zinc	mg/kg	21			8.1			34			5.3	J	J
SW846 8330B	1,3,5-Trinitrobenzene	mg/kg	0.037	U		0.039	U		0.039	U		0.039	U	
SW846 8330B	1,3-Dinitrobenzene	mg/kg	0.037	U		0.039	U		0.039	U		0.039	U	
SW846 8330B	2,4,6-Trinitrotoluene	mg/kg	0.037	U		0.039	U		0.039	U		0.039	U	
SW846 8330B	2,4-Dinitrotoluene	mg/kg	0.037	U		0.039	U		0.039	U		0.039	U	
SW846 8330B	2,6-Dinitrotoluene	mg/kg	0.036	J	J	0.039	U		0.039	U		0.039	U	
SW846 8330B	2-Amino-4,6-dinitrotoluene	mg/kg	0.037	U		0.039	U		0.039	U		0.039	U	
SW846 8330B	3,5-Dinitroaniline	mg/kg	0.037	U		0.039	U		0.039	U		0.039	U	
SW846 8330B	4-Amino-2,6-dinitrotoluene	mg/kg	0.037	U		0.039	U		0.039	U		0.039	U	
SW846 8330B	HMX	mg/kg	0.037	U		0.039	U		0.039	U		0.039	U	
SW846 8330B	Nitroglycerin	mg/kg	0.37	U		0.39	U		0.39	U		0.39	U	
SW846 8330B	PETN	mg/kg	0.93	U		0.97	U		0.98	U		0.98	U	
SW846 8330B	RDX	mg/kg	0.074	U		0.078	U		0.078	U		0.079	U	
SW846 8330B	Tetryl	mg/kg	0.074	U		0.078	U		0.078	U		0.079	U	
SW846 8330B	2-Nitrotoluene	mg/kg	0.074	U		0.078	U		0.078	U		0.079	U	
SW846 8330B	4-Nitrotoluene	mg/kg	0.093	U		0.097	U		0.098	U		0.098	U	
SW846 8330B	3-Nitrotoluene	mg/kg	0.074	U		0.078	U		0.078	U		0.079	U	

Analytical Method	Chemical Name	Result Unit	CM-SU0036			CM-SU0037			CM-SU0038		
			10/1/2013			10/1/2013			10/1/2013		
			Soil Class A			Soil Class B			Soil Class A		
			Primary			Primary			Primary		
			Result	Qualifiers Lab	Qualifiers Val	Result	Qualifiers Lab	Qualifiers Val	Result	Qualifiers Lab	Qualifiers Val
SW846 6010B	Aluminum	mg/kg	5500	J		2700			2400		
SW846 6010B	Antimony	mg/kg	0.60	UJ	UJ	0.61	U	UJ	0.56	U	UJ
SW846 6010B	Barium	mg/kg	45			34			74		
SW846 6010B	Copper	mg/kg	5.8	J		1.8	J	J	2.3	J	J
SW846 6010B	Lead	mg/kg	10			8.2			5.8		
SW846 6010B	Magnesium	mg/kg	530			220			270		
SW846 6010B	Nickel	mg/kg	4.0			2.9	J	J	6.9		
SW846 6010B	Zinc	mg/kg	21			8.7			8.5		
SW846 8330B	1,3,5-Trinitrobenzene	mg/kg	0.038	U		0.038	U		0.038	U	
SW846 8330B	1,3-Dinitrobenzene	mg/kg	0.038	U		0.038	U		0.038	U	
SW846 8330B	2,4,6-Trinitrotoluene	mg/kg	0.038	U		0.038	U		0.038	U	
SW846 8330B	2,4-Dinitrotoluene	mg/kg	0.038	U		0.038	U		0.038	U	
SW846 8330B	2,6-Dinitrotoluene	mg/kg	0.095	M		0.038	U		0.038	U	
SW846 8330B	2-Amino-4,6-dinitrotoluene	mg/kg	0.038	U		0.038	U		0.038	U	
SW846 8330B	3,5-Dinitroaniline	mg/kg	0.038	U		0.038	U		0.038	U	
SW846 8330B	4-Amino-2,6-dinitrotoluene	mg/kg	0.038	U		0.038	U		0.038	U	
SW846 8330B	HMX	mg/kg	0.038	U		0.038	U		0.038	U	
SW846 8330B	Nitroglycerin	mg/kg	0.38	U		0.38	U		0.38	U	
SW846 8330B	PETN	mg/kg	0.95	U		0.94	U		0.96	U	
SW846 8330B	RDX	mg/kg	0.076	U		0.075	U		0.076	U	
SW846 8330B	Tetryl	mg/kg	0.076	U		0.075	U		0.076	U	
SW846 8330B	2-Nitrotoluene	mg/kg	0.076	U		0.075	U		0.076	U	
SW846 8330B	4-Nitrotoluene	mg/kg	0.095	U		0.094	U		0.096	U	
SW846 8330B	3-Nitrotoluene	mg/kg	0.076	U		0.075	U		0.076	U	

Notes:

[a] = Background averages were calculated from background samples corresponding to either Soil Class A or Soil Class B.

[b] = Analyte only detected in one background sample. Average could not be determined and non-detect samples were not compared to single background value.

[c] = In these cases, the Project Action Limit (PAL) is the Analytical Method LOQ instead of the listed TRRP value. The TRRP allows for media-specific PALs to be established based on the analytical limitations (30 TAC 350.78(c)). TRRP states that if a critical PAL for a COC is less than the Method Quantitation Limit (MQL), then the MQL is the critical PAL for that COC. In this case, the MQLs are the Analytical Method LOQs.

[d] = For metals, the TCEQ ecological benchmarks for soil were used. If more recent USEPA EcoSSLs are available, those values were used.

[e] = For explosives, the minimum NOAEL available for soil was used.

Laboratory Qualifiers:
J = Estimated: The analyte was positively identified; the quantitation is an estimation
M = Manual integrated compound
Q = One or more quality criteria failed
U = Undetected at the Limit of Detection

Validation Qualifiers:
J+ = Data are qualified as estimated; with a high bias likely to occur.
J- = Data are qualified as estimated; with a low bias likely to occur.
J = Data are qualified as estimated; it is not posible to assess the direction of the potential bias.
U = Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
R = Data are qualified as rejected. There is a significant potential for the reporting of false negatives or false positives.
UJ = Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

= exceeds PALs using site specific backround data only

= exceeds PALs using both site specific and Texas backround data

Table 3-5: Surface Soil Sample Results

Analytical Method	Chemical Name	Result Unit	CM-SU0038A			CM-SU0038B			CM-SU0039			CM-SU0039A			CM-SU0039B			CM-SU0040			CM-SU0040A			CM-SU0040B			CM-SU0041			CM-SU0042			CM-SU0043		
			10/1/2013			10/1/2013			10/2/2013			10/2/2013			10/2/2013			10/2/2013			10/2/2013			10/2/2013			10/2/2013			10/3/2013			10/3/2013		
			Soil Class A			Soil Class A			Soil Class A			Soil Class A			Soil Class A			Soil Class B			Soil Class B			Soil Class B			Soil Class B			Soil Class B			Soil Class B		
			Duplicate			Tripicate			Primary			Duplicate			Triplicate			Primary			Duplicate			Triplicate			Primary			Primary			Primary		
			Result	Qualifiers		Result	Qualifiers		Result	Qualifiers		Result	Qualifiers		Result	Qualifiers		Result	Qualifiers		Result	Qualifiers		Result	Qualifiers		Result	Qualifiers		Result	Qualifiers		Result	Qualifiers	
				Lab	Val		Lab	Val		Lab	Val		Lab	Val		Lab	Val		Lab	Val		Lab	Val		Lab	Val		Lab	Val		Lab	Val		Lab	Val
SW846 6010B	Aluminum	mg/kg	2400			2200			1400			1600			1500			7800			5500		J	6100	J	J	2600			10000			2000		
SW846 6010B	Antimony	mg/kg	0.56	U	UJ	0.59	U	UJ	0.59	U	UJ	0.55	U	UJ	0.58	U	UJ	0.62	U	UJ	0.63	U		0.61	U		0.56	U	UJ	0.64	U	UJ	0.56	U	UJ
SW846 6010B	Barium	mg/kg	83			84			43			46			44			86			67		J	76	J	J	55			93			44		
SW846 6010B	Copper	mg/kg	2.5	J	J	2.3	J	J	1.1	J	J	1.2	J	J	1.2	J	J	6.8			5.5			6.4			2.4	J	J	8.7			2.1	J	J
SW846 6010B	Lead	mg/kg	6.1			6.0			4.5			4.5			4.5			9.4			6.9			7.8			7.9			9.8			6.0		
SW846 6010B	Magnesium	mg/kg	280			270			220			240			240			910			610		J	680		J	320			1200			230		
SW846 6010B	Nickel	mg/kg	6.6			4.9			1.8	J	J	2.0	J	J	1.9	J	J	9.2			7.2		J	8.2		J	3.5	J	J	13			3.2	J	J
SW846 6010B	Zinc	mg/kg	9.5			8.7			4.8	J	J	5.3	J	J	5.0	J	J	27			19		J	21		J	8.4			30			9.5		
SW846 8330B	1,3,5-Trinitrobenzene	mg/kg	0.039	U		0.038	U		0.039	U		0.038	U		0.038	U		0.038	U		0.04	U		0.037	U		0.037	U		0.039	U		0.04	U	
SW846 8330B	1,3-Dinitrobenzene	mg/kg	0.039	U		0.038	U		0.039	U		0.038	U		0.038	U		0.038	U		0.04	U		0.037	U		0.037	U		0.039	U		0.04	U	
SW846 8330B	2,4,6-Trinitrotoluene	mg/kg	0.039	U		0.038	U		0.039	U		0.038	U		0.038	U		0.038	U		0.04	U		0.037	U		0.037	U		0.039	U		0.04	U	
SW846 8330B	2,4-Dinitrotoluene	mg/kg	0.039	U		0.038	U		0.039	U		0.038	U		0.038	U		0.038	U		0.04	U		0.037	U		0.037	U		0.039	U		0.04	U	
SW846 8330B	2,6-Dinitrotoluene	mg/kg	0.039	U		0.038	U		0.039	U		0.038	U		0.038	U		0.038	U		0.04	U		0.037	U		0.037	U		0.039	U		0.04	U	
SW846 8330B	2-Amino-4,6-dinitrotoluene	mg/kg	0.039	U		0.038	U		0.039	U		0.038	U		0.038	U		0.038	U		0.04	U		0.037	U		0.037	U		0.039	U		0.04	U	
SW846 8330B	3,5-Dinitroaniline	mg/kg	0.039	U		0.038	U		0.039	U		0.038	U		0.038	U		0.038	U		0.04	U		0.037	U		0.037	U		0.039	U		0.04	U	
SW846 8330B	4-Amino-2,6-dinitrotoluene	mg/kg	0.039	U		0.038	U		0.039	U		0.038	U		0.038	U		0.038	U		0.04	U		0.037	U		0.037	U		0.039	U		0.04	U	
SW846 8330B	HMX	mg/kg	0.039	U		0.038	U		0.039	U		0.038	U		0.038	U		0.038	U		0.04	U		0.037	U		0.037	U		0.039	U		0.04	U	
SW846 8330B	Nitroglycerin	mg/kg	0.39	U		0.38	U		0.39	U		0.38	U		0.38	U		0.38	U		0.4	U		0.37	U		0.37	U		0.39	U		0.4	U	
SW846 8330B	PETN	mg/kg	0.99	U		0.95	U		0.98	UQ		0.94	UQ		0.94	UQ		0.95	UQ		0.99	UQ		0.91	UQ		0.93	UQ		0.98	UQ		1.0	UQ	
SW846 8330B	RDX	mg/kg	0.079	U		0.076	U		0.078	U		0.075	U		0.075	U		0.076	U		0.079	U		0.073	U		0.074	U		0.079	U		0.08	U	
SW846 8330B	Tetryl	mg/kg	0.079	U		0.076	U		0.078	U		0.075	U		0.075	U		0.076	U		0.079	U		0.073	U		0.074	U		0.079	U		0.08	U	
SW846 8330B	2-Nitrotoluene	mg/kg	0.079	U		0.076	U		0.078	U		0.075	U		0.075	U		0.076	U		0.079	U		0.073	U		0.074	U		0.079	U		0.08	U	
SW846 8330B	4-Nitrotoluene	mg/kg	0.099	U		0.095	U		0.098	U		0.094	U		0.094	U		0.095	U		0.099	U		0.091	U		0.093	u		0.098	U		0.1	U	
SW846 8330B	3-Nitrotoluene	mg/kg	0.079	U		0.076	U		0.078	U		0.075	U		0.075	U		0.076	U		0.079	U		0.073	U		0.074	U		0.079	U		0.08	U	

Notes:

[a] = Background averages were calculated from background samples corresponding to either Soil Class A or Soil Class B.

[b] = Analyte only detected in one background sample. Average could not be determined and non-detect samples were not compared to single background value.

[c] = In these cases, the Project Action Limit (PAL) is the Analytical Method LOQ instead of the listed TRRP value. The TRRP allows for media-specific PALs to be established based on the analytical limitations (30 TAC 350.78(c)). TRRP states that if a critical PAL for a COC is less than the Method Quantitation Limit (MQL), then the MQL is the critical PAL for that COC. In this case, the MQLs are the Analytical Method LOQs.

[d] = For metals, the TCEQ ecological benchmarks for soil were used. If more recent USEPA EcoSSLs are available, those values were used.

[e] = For explosives, the minimum NOAEL available for soil was used.

Laboratory Qualifiers:

J = Estimated: The analyte was positively identified; the quantitation is an estimation

M = Manual integrated compound

Q = One or more quality criteria failed

U = Undetected at the Limit of Detection

Validation Qualifiers:

J+ = Data are qualified as estimated; with a high bias likely to occur.

J- = Data are qualified as estimated; with a low bias likely to occur.

J = Data are qualified as estimated; it is not posible to assess the direction of the potential bias.

U = Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

R = Data are qualified as rejected. There is a significant potential for the reporting of false negatives or false positives.

UJ = Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

= exceeds PALs using site specific backround data only

= exceeds PALs using both site specific and Texas backround data

Table 3-5: Surface Soil Sample Results

Analytical Method	Chemical Name	Result Unit	CM-SU0044			CM-SU0045			CM-SU0046			CM-SU0047		
			10/3/2013			10/3/2013			10/3/2013			10/4/2013		
			Soil Class B			Soil Class A			Soil Class A			Soil Class A		
			Primary			Primary			Primary			Primary		
			Result	Qualifiers		Result	Qualifiers		Result	Qualifiers		Result	Qualifiers	
				Lab	Val		Lab	Val		Lab	Val		Lab	Val
SW846 6010B	Aluminum	mg/kg	14000			1500			1800			3000		
SW846 6010B	Antimony	mg/kg	0.65	U	UJ	0.58	U	UJ	0.58	U	UJ	0.59	UJ	UJ
SW846 6010B	Barium	mg/kg	130			50			46			53		
SW846 6010B	Copper	mg/kg	12			3.9	J	J	2.1	J	J	2.3	J	J
SW846 6010B	Lead	mg/kg	12			6.8			6.1			11		
SW846 6010B	Magnesium	mg/kg	1400			170			200			360		
SW846 6010B	Nickel	mg/kg	12			1.9	J	J	1.6	J	J	3.4	J	J
SW846 6010B	Zinc	mg/kg	34			7.7			7.0	J	J	8.3		
SW846 8330B	1,3,5-Trinitrobenzene	mg/kg	0.039	U		0.04	U		0.037	U		0.039	U	
SW846 8330B	1,3-Dinitrobenzene	mg/kg	0.039	U		0.04	U		0.037	U		0.039	U	
SW846 8330B	2,4,6-Trinitrotoluene	mg/kg	0.039	U		0.04	U		0.037	U		0.039	U	
SW846 8330B	2,4-Dinitrotoluene	mg/kg	0.039	U		0.04	U		0.037	U		0.014	J	J
SW846 8330B	2,6-Dinitrotoluene	mg/kg	0.039	U		0.04	U		0.037	U		0.039	U	
SW846 8330B	2-Amino-4,6-dinitrotoluene	mg/kg	0.039	U		0.04	U		0.037	U		0.039	U	
SW846 8330B	3,5-Dinitroaniline	mg/kg	0.039	U		0.04	U		0.037	U		0.039	U	
SW846 8330B	4-Amino-2,6-dinitrotoluene	mg/kg	0.039	U		0.04	U		0.037	U		0.039	U	
SW846 8330B	HMX	mg/kg	0.039	U		0.04	U		0.037	U		0.039	U	
SW846 8330B	Nitroglycerin	mg/kg	0.39	U		0.4	U		0.37	U		0.39	U	
SW846 8330B	PETN	mg/kg	0.98	U		1.0	UQ		0.92	UQ		0.98	UQ	
SW846 8330B	RDX	mg/kg	0.079	U		0.08	U		0.074	U		0.078	U	
SW846 8330B	Tetryl	mg/kg	0.079	U		0.08	U		0.074	U		0.078	U	
SW846 8330B	2-Nitrotoluene	mg/kg	0.079	U		0.08	U		0.074	U		0.078	U	
SW846 8330B	4-Nitrotoluene	mg/kg	0.098	U		0.1	U		0.092	U		0.098	U	
SW846 8330B	3-Nitrotoluene	mg/kg	0.079	U		0.08	U		0.074	U		0.078	U	

Notes:

[a] = Background averages were calculated from background samples corresponding to either Soil Class A or Soil Class B.

[b] = Analyte only detected in one background sample. Average could not be determined and non-detect samples were not compared to single background value.

[c] = In these cases, the Project Action Limit (PAL) is the Analytical Method LOQ instead of the listed TRRP value. The TRRP allows for media-specific PALs to be established based on the analytical limitations (30 TAC 350.78(c)). TRRP states that if a critical PAL for a COC is less than the Method Quantitation Limit (MQL), then the MQL is the critical PAL for that COC. In this case, the MQLs are the Analytical Method LOQs.

[d] = For metals, the TCEQ ecological benchmarks for soil were used. If more recent USEPA EcoSSLs are available, those values were used.

[e] = For explosives, the minimum NOAEL available for soil was used.

Laboratory Qualifiers:
J = Estimated: The analyte was positively identified; the quantitation is an estimation
M = Manual integrated compound
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Validation Qualifiers:
J+ = Data are qualified as estimated; with a high bias likely to occur.
J- = Data are qualified as estimated; with a low bias likely to occur.
J = Data are qualified as estimated; it is not posible to assess the direction of the potential bias.
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UJ = Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

= exceeds PALs using site specific backround data only

= exceeds PALs using both site specific and Texas backround data

Table 3-6: Subsurface Soil Sampling Results

Date	Grid	Sample ID	Lead Results (mg/kg)	Qualifiers		Soil Class
				Lab	Val	
12/4/2013	W59A1G1	CM-SU-01-SUB01	9	--	--	A
		CM-SU-01-SUB02	10	--	--	
		CM-SU-01-SUB03	12	--	--	
		CM-SU-01-SUB04	9.7	--	--	
	W54A3G1	CM-SU-02-SUB01	9.8	--	--	B
		CM-SU-02-SUB02	9.3	--	--	
		CM-SU-02-SUB03	9.3	--	--	
		CM-SU-02-SUB04	9.5	--	--	
		CM-SU-02-SUB04DUP	9.7	--	--	
	W49A2G1	CM-SU-03-SUB01	11	--	--	B
		CM-SU-03-SUB02	14	--	--	
		CM-SU-03-SUB03	9.9	--	--	
		CM-SU-03-SUB04	13	--	--	
12/5/2013	W44A2G2	CM-SU-04-SUB01	14	--	--	A
		CM-SU-04-SUB02	10	--	--	
		CM-SU-04-SUB03	21	--	--	
		CM-SU-04-SUB04	10	--	--	
		CM-SU-04-SUB04DUP	10	--	--	
	W47A2G3	CM-SU-05-SUB01	8.1	--	--	A
		CM-SU-05-SUB02	6.2	--	--	
		CM-SU-05-SUB03	7.8	--	--	
		CM-SU-05-SUB04	13	--	--	
		CM-SU-05-SUB04DUP	27	--	--	
	W44A2G3	CM-SU-06-SUB01	3.2	--	--	A
		CM-SU-06-SUB02	8.2	--	--	
		CM-SU-06-SUB03	12	--	--	
		CM-SU-06-SUB04	6.5	--	--	
		CM-SU-06-SUB04DUP	5.4	--	--	
	W39A2G2	CM-SU-07-SUB01	6.4	--	--	A
		CM-SU-07-SUB02	10	--	--	
		CM-SU-07-SUB03	5.4	--	--	
		CM-SU-07-SUB04	10	--	--	
12/7/2013	W40A2G1	CM-SU-08-SUB01	4.9	--	--	A
		CM-SU-08-SUB02	8.5	--	--	
		CM-SU-08-SUB03	7.3	--	--	
		CM-SU-08-SUB04	5.6	--	--	

Date	Grid	Sample ID	Lead Results (mg/kg)	Qualifiers Lab	Qualifiers Val	Soil Class
		CM-SU-08-SUB04DUP	6.4	--	--	
	W44A2G1	CM-SU-09-SUB01	5.6	--	--	A
		CM-SU-09-SUB02	9.6	--	--	
		CM-SU-09-SUB03	4.9	--	--	
		CM-SU-09-SUB04	4.8	--	--	
	W38A2G1	CM-SU-10-SUB01	5.7	--	--	A
		CM-SU-10-SUB02	9	--	--	
		CM-SU-10-SUB03	7.6	--	--	
		CM-SU-10-SUB04	4.6	--	--	
		CM-SU-10-SUB04DUP	10	--	--	
	W37A2G1	CM-SU-11-SUB01	5.9	--	--	B
		CM-SU-11-SUB02	8.8	--	--	
		CM-SU-11-SUB03	14	--	--	
		CM-SU-11-SUB04	9.7	--	--	
	W35A2G2	CM-SU-12-SUB01	9.2	--	--	B
		CM-SU-12-SUB02	7.1	--	--	
		CM-SU-12-SUB03	21	--	--	
		CM-SU-12-SUB04	12	--	--	
12/9/2013	W54A3G2	CM-SU-13-SUB01	11	--	--	B
		CM-SU-13-SUB02	13	--	--	
		CM-SU-13-SUB03	13	--	--	
		CM-SU-13-SUB04	10	--	--	
	W29A2G1	CM-SU-14-SUB01	6.3	--	--	A
		CM-SU-14-SUB02	20	--	--	
		CM-SU-14-SUB03	13	--	--	
		CM-SU-14-SUB04	14	--	--	
	W27A2G2	CM-SU-15-SUB01	9.2	--	--	A
		CM-SU-15-SUB02	11	--	--	
		CM-SU-15-SUB03	9.5	--	--	
		CM-SU-15-SUB04	7.8	--	--	
	W27A2G1	CM-SU-16-SUB01	12	--	--	A
		CM-SU-16-SUB02	18	--	--	
		CM-SU-16-SUB03	10	--	--	
		CM-SU-16-SUB04	6.6	--	--	
12/10/2013	W23A2G1	CM-SU-17-SUB01	6.6	--	--	A
		CM-SU-17-SUB02	4.4	--	--	
		CM-SU-17-SUB03	6.7	--	--	
		CM-SU-17-SUB04	7	--	--	
	W24A2G1	CM-SU-18-SUB01	4	--	--	A

Date	Grid	Sample ID	Lead Results (mg/kg)	Qualifiers Lab	Qualifiers Val	Soil Class
		CM-SU-18-SUB02	3.1	--	--	
		CM-SU-18-SUB03	4.7	--	--	
		CM-SU-18-SUB04	3.9	--	--	
	W18A2G2	CM-SU-19-SUB01	9.9	--	--	B
		CM-SU-19-SUB02	9.9	--	--	
		CM-SU-19-SUB03	15	--	--	
		CM-SU-19-SUB04	9.4	--	--	
	W18A2G1	CM-SU-20-SUB01	9.1	--	--	B
		CM-SU-20-SUB02	8	--	--	
		CM-SU-20-SUB03	8.2	--	--	
		CM-SU-20-SUB04	5.2	--	--	
12/11/2013	W11A2G1	CM-SU-21-SUB01	14	--	--	B
		CM-SU-21-SUB02	7.6	--	--	
		CM-SU-21-SUB03	20	--	--	
		CM-SU-21-SUB04	7.8	--	--	
	W9A2G1	CM-SU-22-SUB01	5.4	--	--	A
		CM-SU-22-SUB02	86	--	--	
		CM-SU-22-SUB03	6.3	--	--	
		CM-SU-22-SUB04	17	--	--	
	W5A1G2	CM-SU-23-SUB01	12	--	--	B
		CM-SU-23-SUB02	11	--	--	
		CM-SU-23-SUB03	8.7	--	--	
		CM-SU-23-SUB04	9.6	--	--	
	W3A1G1	CM-SU-24-SUB01	12	--	--	A
		CM-SU-24-SUB02	15	--	--	
		CM-SU-24-SUB03	19	--	--	
		CM-SU-24-SUB04	6.7	--	--	
12/12/2013	W46A1G1	CM-SU-25-SUB01	13	--	--	A
		CM-SU-25-SUB02	10	--	--	
		CM-SU-25-SUB03	14	--	--	
		CM-SU-25-SUB04	12	--	--	
		CM-SU-25-SUB04DUP	12	--	--	
	Historical 3	HIST3-SUB01	6.4	--	--	A
		HIST3-SUB02	6.5	--	--	
		HIST3-SUB03	6.1	--	--	
		HIST3-SUB04	6.2	--	--	
12/13/2013	W31A2G1	CM-SU-26-SUB01	19	--	--	A
		CM-SU-26-SUB01DUP	13	--	--	
		CM-SU-26-SUB02	16	--	--	

Date	Grid	Sample ID	Lead Results (mg/kg)	Qualifiers		Soil Class
				Lab	Val	
		CM-SU-26-SUB03	14	--	--	
		CM-SU-26-SUB04	23	--	--	
		CM-SU-26-SUB04DUP	23	--	--	
12/14/2013	G06BG1	CM-SU-27-SUB01	10	--	--	A
		CM-SU-27-SUB02	6.8	--	--	
		CM-SU-27-SUB03	6.6	--	--	
		CM-SU-27-SUB04	9.6	--	--	
		CM-SU-27-SUB04DUP	8.2	--	--	
	G23CG1	CM-SU-28-SUB01	4.5	--	--	A
		CM-SU-28-SUB02	3.2	--	--	
		CM-SU-28-SUB03	3.1	--	--	
		CM-SU-28-SUB04	6.8	--	--	
		CM-SU-28-SUB04DUP	8.2	--	--	
	G11CG1	CM-SU-29-SUB01	16	--	--	A
		CM-SU-29-SUB02	4.8	--	--	
		CM-SU-29-SUB03	7.4	--	--	
		CM-SU-29-SUB04	5.4	--	--	
		CM-SU-29-SUB04DUP	5.3	--	--	

3.3.4 Munitions Constituents Results Summary

3.3.4.1 Munitions Constituents Data Analysis

3.3.4.1.1. The surface soil data were evaluated by comparing detected constituent concentrations to the PALs presented in Table 3-4. The PALs are the higher of site-specific background values and TRRP Tier 1 Residential PCLs for a 30-acre source area (June 29, 2012). The TRRP Tier 1 soil PCL considered for each constituent was the lower (*i.e.,* more health-protective) of the Tier 1 PCL for combined soil exposures (${}^{Tot}Soil_{Comb}$) and the Tier 1 PCL protective of leaching from soil to groundwater (${}^{GW}Soil_{Ing}$).

3.3.4.1.2. Based on the phased approach established for MC sampling, subsurface soil samples were collected at locations where the surface soil sample results exceeded PALs. As shown in Table 3-5 and described in Section 3.3.4.2 below, lead and magnesium were detected in surface soil at concentrations exceeding the PALs, which for both constituents was a site-specific background value. However, subsurface soil samples were collected and analyzed for lead and not magnesium, as there are no risk-based screening values available for magnesium.

3.3.4.1.3. Subsurface soil samples were also analyzed for pH, to allow for determination of a site-specific Tier 2 GWSoilIng PCL protective of leaching from soil to groundwater. A Tier 2 GWSoilIng PCL was calculated using site-specific inputs (e.g., soil pH) and the TRRP Tier 2 equations; the calculation is presented in Appendix L. An average pH of 5.2 in background soil samples collected at the Site was used to calculate the Tier 2 PCL for lead. The default leachate dilution factor for a 30-acre source area, along with the compound-specific Ksw (calculated using default parameters and pH-specific Kd from Figure 30 Texas Annotated Code (TAC) §350.73(f)(1)(A), assuming a loamy soil type) and the groundwater ingestion PCL for lead, were used to calculate the Tier 2 GWSoilIng PCL.

3.3.4.1.4. A discussion of the subsurface soil sampling results is presented in Section 3.3.4.3.

3.3.4.2 Surface Soil

A total of 47 surface soil samples were collected from Former Camp Maxey. No explosives were detected and lead and magnesium were detected in levels exceeding the original PALs using site specific background data (7.6 mg/kg for lead and 228 mg/kg for magnesium) in several samples (see Table 3-5).

3.3.4.3 Subsurface Soil

A total of 120 subsurface soil samples, plus QC samples in the form of duplicates, were collected from Former Camp Maxey at locations that exceeded the original PAL for lead in surface soil. Lead was not detected in any samples at levels exceeding the revised PAL of 90 mg/kg using the values adjusted based on the TRRP Tier 2 calculations shown in Appendix L (see Table 3-6).

3.4 INVESTIGATIVE DERIVED WASTE

Investigative Derived Waste generated as part of the MC field investigation was properly collected, labeled, profiled, manifested, transported, and disposed of. Decontamination water generated during the incremental sampling activities was contained in five-gallon buckets temporarily staged on-site. Three TCLP samples were collected from the decontamination water (two from the surface sampling event and one from the subsurface sampling event) and compared to regulatory levels. All TCLP sampling results came back well below regulatory levels and the water was disposed accordingly.

3.5 Deviations from the Final Work Plan

3.5.1 MEC

3.3.5.1.1. The most significant deviation from the work plan resulted in the lack of access to some private parcels which prevented the collection of data in portions of the MRS. Rights of entry were not granted to any of the suspected previous Cave Training Area as well as to portions of the Western Range Area and Mine and Booby-trap Area. The lack of access limited the ability to collect data as described in the work plan. Other minor deviations were addressed in field change requests (FCR) and are described below.

3.3.5.1.2. The accuracy of GPS equipment used to mark transects and collect geophysical data could not meet the +1 meter required in the work plan under some field conditions. Based on the results of the IVS (see Appendix A), an FCR was submitted to adjust the accuracy to match the capability of the equipment. The FCR changed the accuracy to + 5 meters which still met the DQO required accuracy of + 10 meters along transects. Data in grids were collected in fiducial mode and accuracy was within + 1 meter.

3.3.5.1.3. A second FCR was submitted following a USACE/TCEQ visit to address recommendations. The QC requirement for a search effectiveness inspection was changed from 10 percent of the grid area to an area defined by a one meter radius around excavated anomalies. The work plan was also revised to require a single measurement of the off-set of the anomaly from its predicted location.

3.5.2 MC

The work plan stated subsurface sampling will be conducted and analyzed for those analytes that exceeded PALs. While both lead and magnesium were detected at levels above PALs, subsurface soil samples were only analyzed for lead as no human health or ecological risk-based screening values are available for magnesium. As described in Section 6.2.2.1, magnesium is an essential nutrient and soil concentrations of magnesium are not expected to be a health concern (TNRCC, 2001b). Additionally, the average pH of background subsurface soil samples was used to develop a site-specific TRRP Tier 2 PCL that is protective of the potential for migration of lead from soil to groundwater.

3.6 Quality Control

3.6.1 Employee Process Training Program

3.6.1.1. All site personnel received the applicable training as specified in the Accident Prevention Plan. In addition, UXO-qualified personnel met the qualification standards for personnel conducting MEC operations, as set forth in DoD Explosives Safety Board Technical Paper 18 Minimum Qualifications for UXO Technicians and Personnel (2004).

3.6.1.2. Documentation of training requirements for each UXO Technician was reviewed by the SUXOS/UXOSO and filed in on-site project files before personnel were allowed to enter the Exclusion Zone. No one was permitted to work in an Exclusion Zone without the appropriate training and medical clearances.

3.6.2 Munitions and Explosives of Concern Quality Assurance/Quality Control

A three-phase control system was used in the implementation of the QC program to ensure that all project work conformed to project DQOs, with the phases being Preparatory, Initial, and Follow-up. The Preparatory Phase included familiarization by project personnel with established DQOs and incorporation of any required follow-up work to ensure the process would pass QC. The Initial Phase was the start of the QC checks on the project process. The Follow-Up Phase included checks conducted after the initial QC check to ensure any discrepancies discovered during the initial QC checks were corrected. All of the areas in which surface and subsurface investigations were completed were subjected to a QC analysis by the UXOQCS.

3.6.2.1 Munitions and Explosives of Concern Quality Control Results

Although ultimately the quality of the data is sufficient for making project decisions, there were some concerns identified by the QC/QA process that were addressed during the collection of data. Geophysical data was collected in some grids prior to installing blind seeds. This issue was identified early and corrected so that subsequent grids were seeded prior to geophysical mapping. In two cases (Grid E-11-A3-G1 and Grid W-20-A1-G1), the grid location was adjusted slightly following the placement of seed items and prior to geophysical mapping, resulting in seeds falling outside of the mapped area. An analysis of the geophysical data was completed to confirm the quality of the data. Surveyed corner stakes placed on grid corners (either 100 feet x 100 feet or 50 feet x 50 feet) served to guide the DGM operations. To ensure accurate positioning survey ropes were placed across each grid at regular intervals (every 25 feet), perpendicular to the line direction. Painted marks on the ropes were used to maintain straight-line profiling at the project design line spacing of 2.5 feet. To show that the data is positioned correctly, two lines of data were recollected at each grid. All repeat and original data was comparable for both response and position. Additionally, sources of anomalies were located at their predicted location and all seeds properly placed in grids were located. The evidence shows that the DGM data is accurate and usable. In one instance (Grid W-27-A2-G2) reported data indicated that a seed was not properly located; however a review of field notes indicated that the seed was found but not properly reported.

3.6.3 Munitions Constituents Quality Control

QC procedures for the MC investigation are documented in the QAPP. Samples were analyzed for the purpose of assessing the quality of the sampling effort and the analytical data.

3.6.3.1 Quality Control Samples

QC for analytical samples was provided through the use of temperature blanks, MS/MSDs and field splits samples. The QC samples were handled as regular samples. QC for the analytical samples was provided through the use of field split samples (triplicate for surface soil and duplicate for subsurface soil). The following QC samples were collected for analytical samples:

- MS/MSDs: Samples were collected to be split in the laboratory and run as MS/MSDs in an amount equal to at least 5 percent of the field samples for laboratory analysis for soil.
- Field Replicate Samples: Field replicate samples were collected in triplicate at six locations during the surface sampling effort and duplicates were collected at 12 locations during the subsurface sampling event. These samples were collected in a quantity equal to at least 10 percent of the field samples for soil.

3.6.3.2 Data Quality Controls

3.6.3.2.1. An independent third party conducted analytical data validation for this project and Data Validation Reports are provided in Appendix C. Objectives for this review are in accordance with the QA/QC objectives stated in the QAPP. Outlying data were flagged, as appropriate, in accordance with laboratory Standard Operating Procedures. Validation qualifiers are included on Table 3-5.

3.6.3.2.2. The data review by automated and manual validation of this sampling event met project requirements and analytical completeness levels. The data set is deemed useable for the intended use. Validation activities were performed in accordance with the following:

- Draft Final Remedial Investigation/Feasibility Study, RI/FS, Quality Assurance Protection Plan, QAPP, for Former Camp Maxey, Lamar County, Texas,August2012
- Engineer Manual Guidance for Evaluating Performance-Based Chemical Data, EM-200-1-10, June 2005
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update I, July 1992; update IIA, August 1993; update II, September 1994; update lIB, January 1995; update Ill, December 1996; update lIlA, April 1998; 1118, November 2004; Update IV, February 2007

3.7 DATA GAPS

3.7.1 Spatial Data from Previous Investigations

3.7.1.1. Spatial data relative to several previous investigations was not available and could therefore not be included with any certainty in the RI results.

- 1997 TCRA UXO locations and clearance boundaries
- 2001 NTCRA clearance boundaries
- 2007 clearance boundaries

3.7.1.2. The quality of data associated with these previous investigations was known during the TPP and DQOs were developed based on data needs considering the lack of data associated with these investigations. The data gaps associated with previous investigations has no impact on the RI/FS.

3.7.2 Private Property with No Rights-Of-Entry

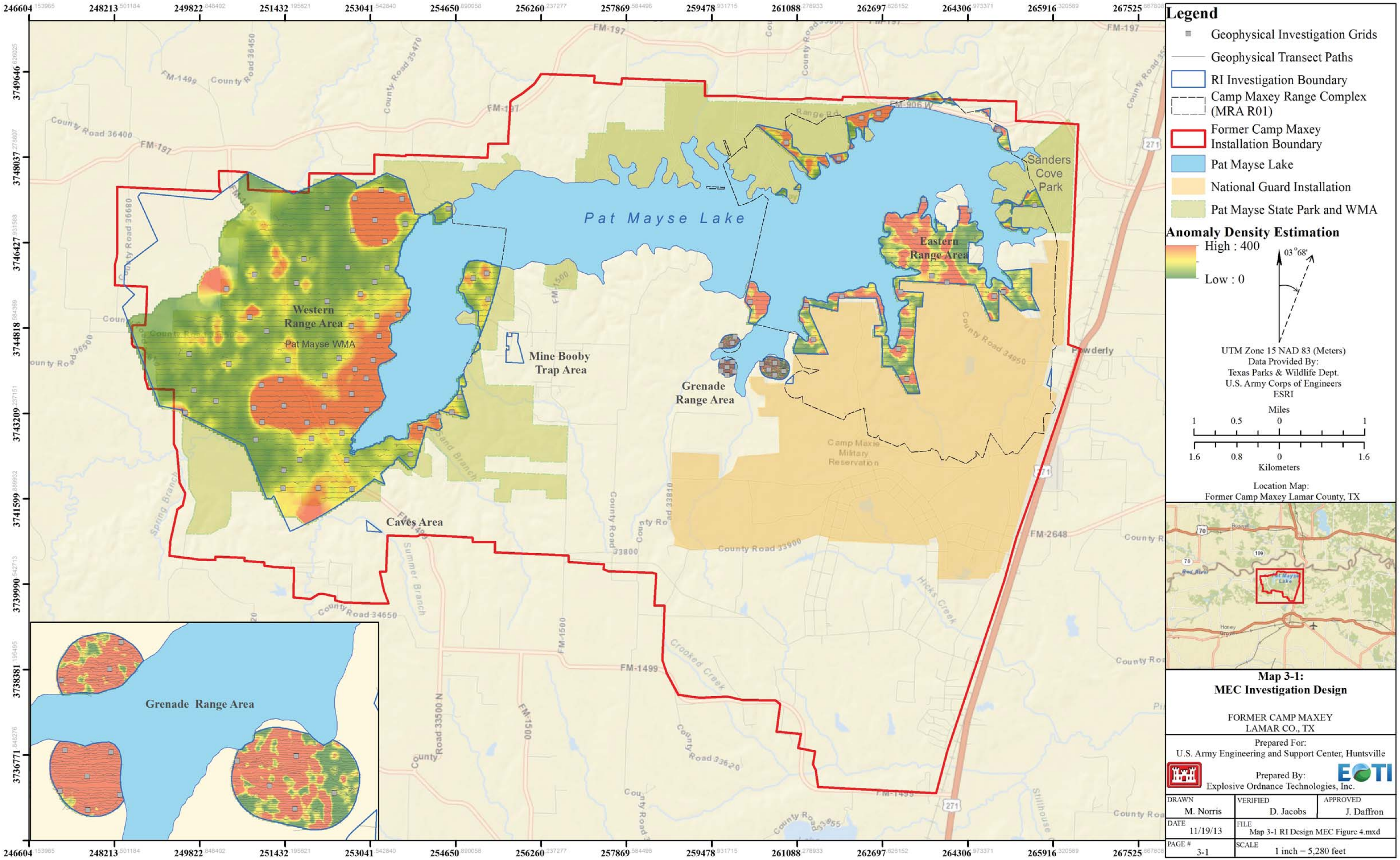
3.7.2.1. All or some areas within the following areas were inaccessible because ROEs were not granted.

- Caves Area
- Mine and Booby Trap Area
- Western Range Area (NW and southern areas)

3.7.2.2. The lack of data associated with the Caves Area and inaccessible portions of the Western Range Area prevent sufficient characterization required to evaluate risk and risk reduction alternatives and therefore additional investigation is recommended. The data gaps associated with inaccessible portions of the Mine and Booby Trap Area are filled with historical data and information as well as evidence (MD) provide by the owner of one of the large parcels that was unavailable during the reconnaissance. Details related to the reconnaissance are included in the report at Appendix J.

3.7.3 Accurate and Current Land Use Spatial Data

Limited public spatial data information is available on current and future planned land use in the area which comprises the Former Camp Maxey footprint. When necessary, data from field teams was used to determine current land use and future land use is expected to remain the same as the current land use. The supplemental data collected by the field teams fills data gaps sufficiently to make necessary decision in the FS.



Map 3-1:
MEC Investigation Design

FORMER CAMP MAXEY
LAMAR CO., TX

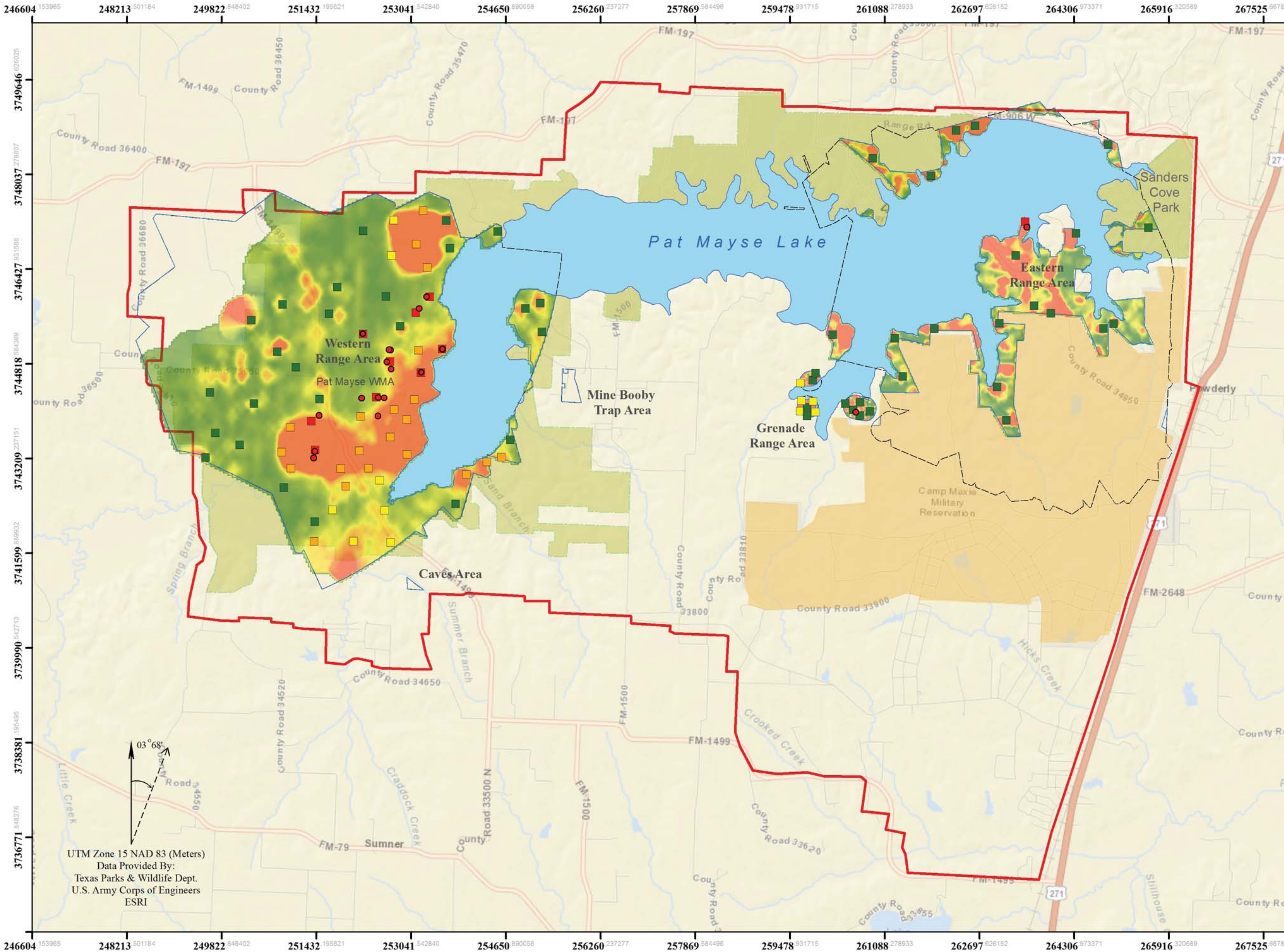
Prepared For:
U.S. Army Engineering and Support Center, Huntsville

Prepared By:
Explosive Ordnance Technologies, Inc.

DRAWN	VERIFIED	APPROVED
M. Norris	D. Jacobs	J. Daffron

DATE	FILE
11/19/13	Map 3-1 RI Design MEC Figure 4.mxd

PAGE #	SCALE
3-1	1 inch = 5,280 feet



Legend

- MEC Item Locations (Within Transects)

MEC Grid Results

- MEC in or near
- No MEC, >250 MD
- No MEC, < 250 MD, > 52 MD
- No MEC, <52 MD/AC
- RI Investigation Boundary
- Camp Maxey Range Complex (MRA R01)
- Former Camp Maxey Installation Boundary
- National Guard Installation
- Pat Mayse State Park and WMA

Anomaly Density Estimation

High : 400

Low : 0

Miles: 1 0.5 0 1

Kilometers: 1.6 0.8 0 1.6

Location Map:
Former Camp Maxey Lamar County, TX

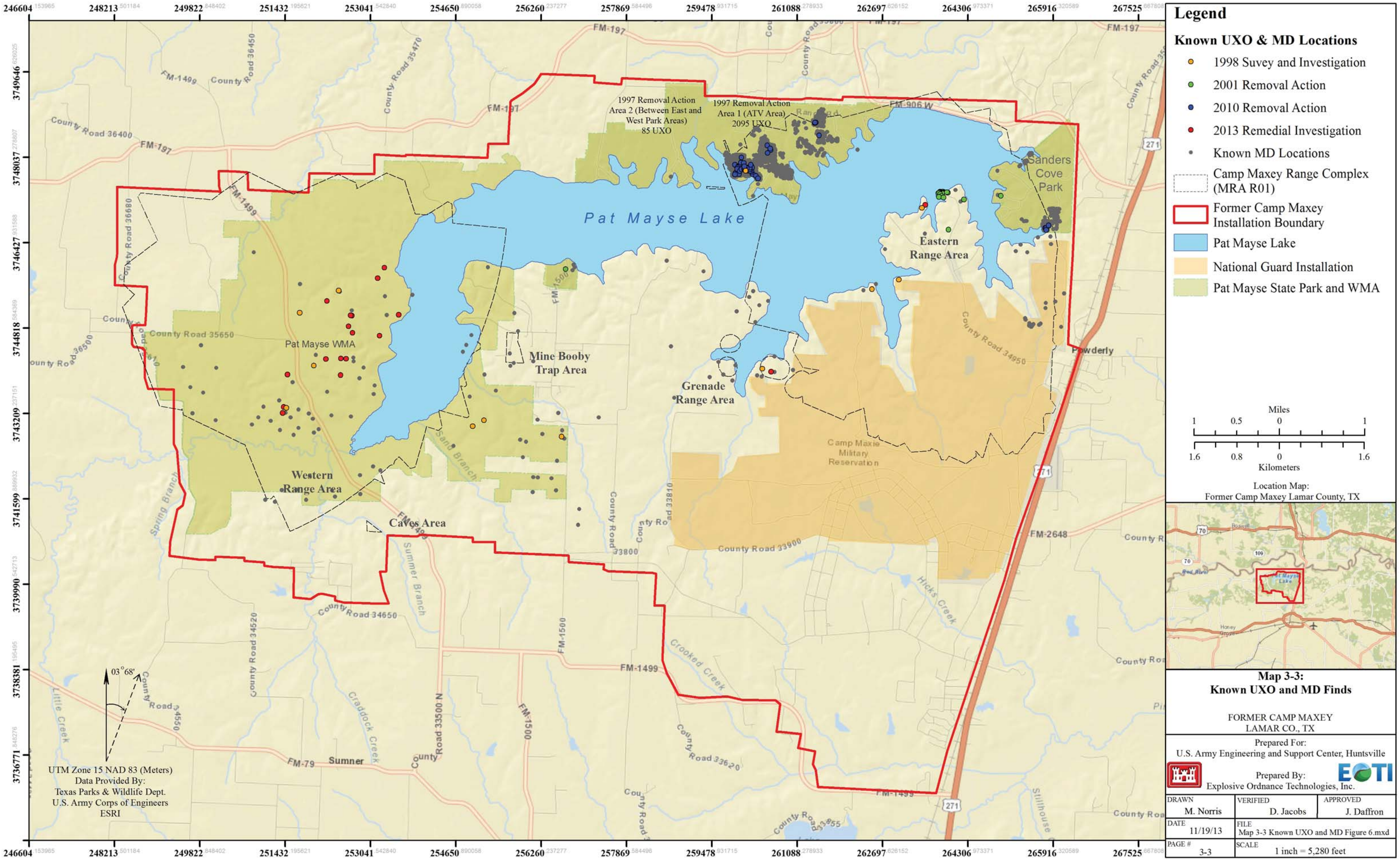
Map 3-2:
MEC Investigation Results

FORMER CAMP MAXEY
LAMAR CO., TX

Prepared For:
U.S. Army Engineering and Support Center, Huntsville

Prepared By:
Explosive Ordnance Technologies, Inc.

DRAWN	VERIFIED	APPROVED
M. Norris	D. Jacobs	J. Daffron
DATE 11/19/13	FILE Map 3-2 RI Results MEC Figure 5.mxd	
PAGE # 3-2	SCALE 1 inch = 5,280 feet	



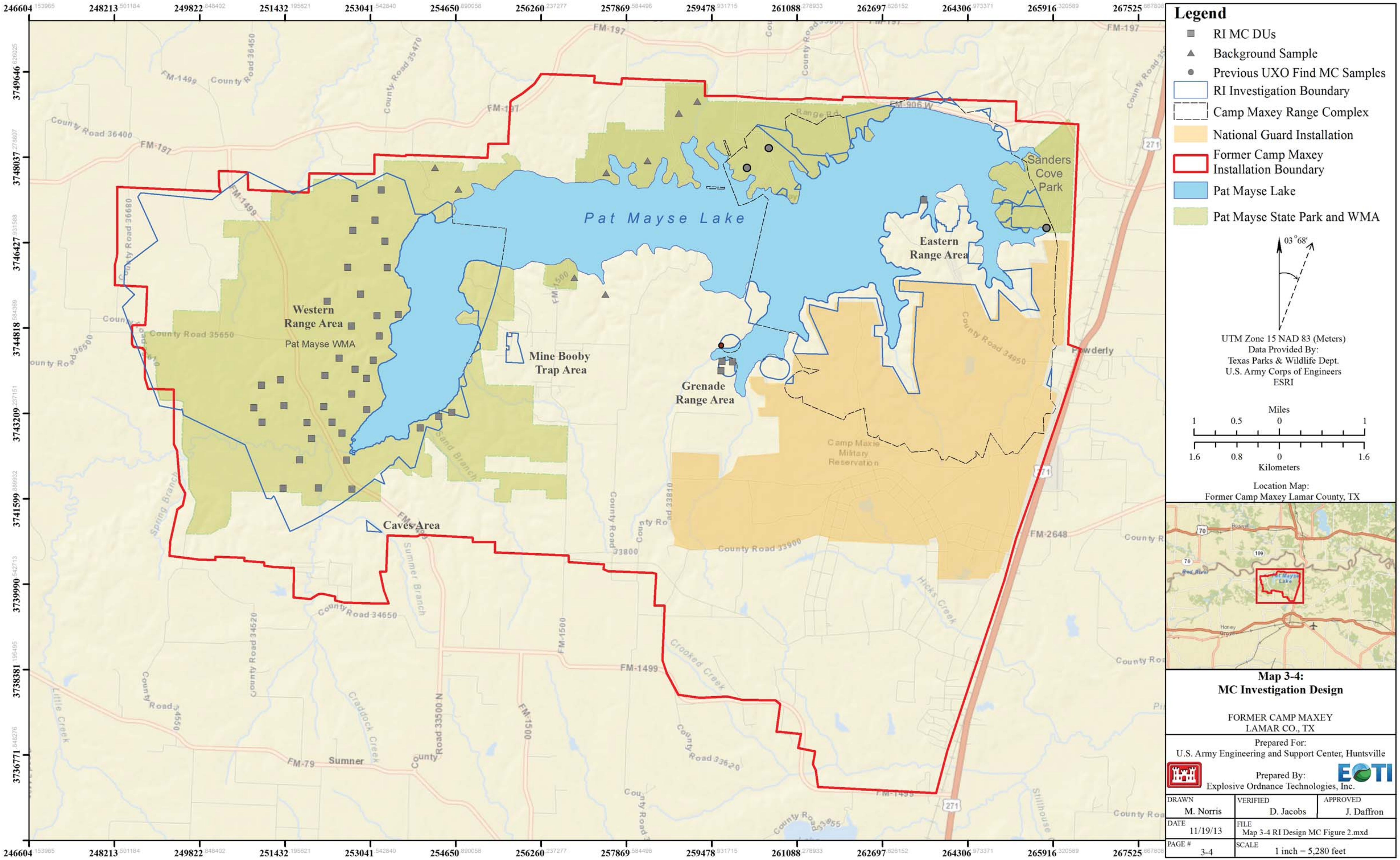
Map 3-3: Known UXO and MD Finds

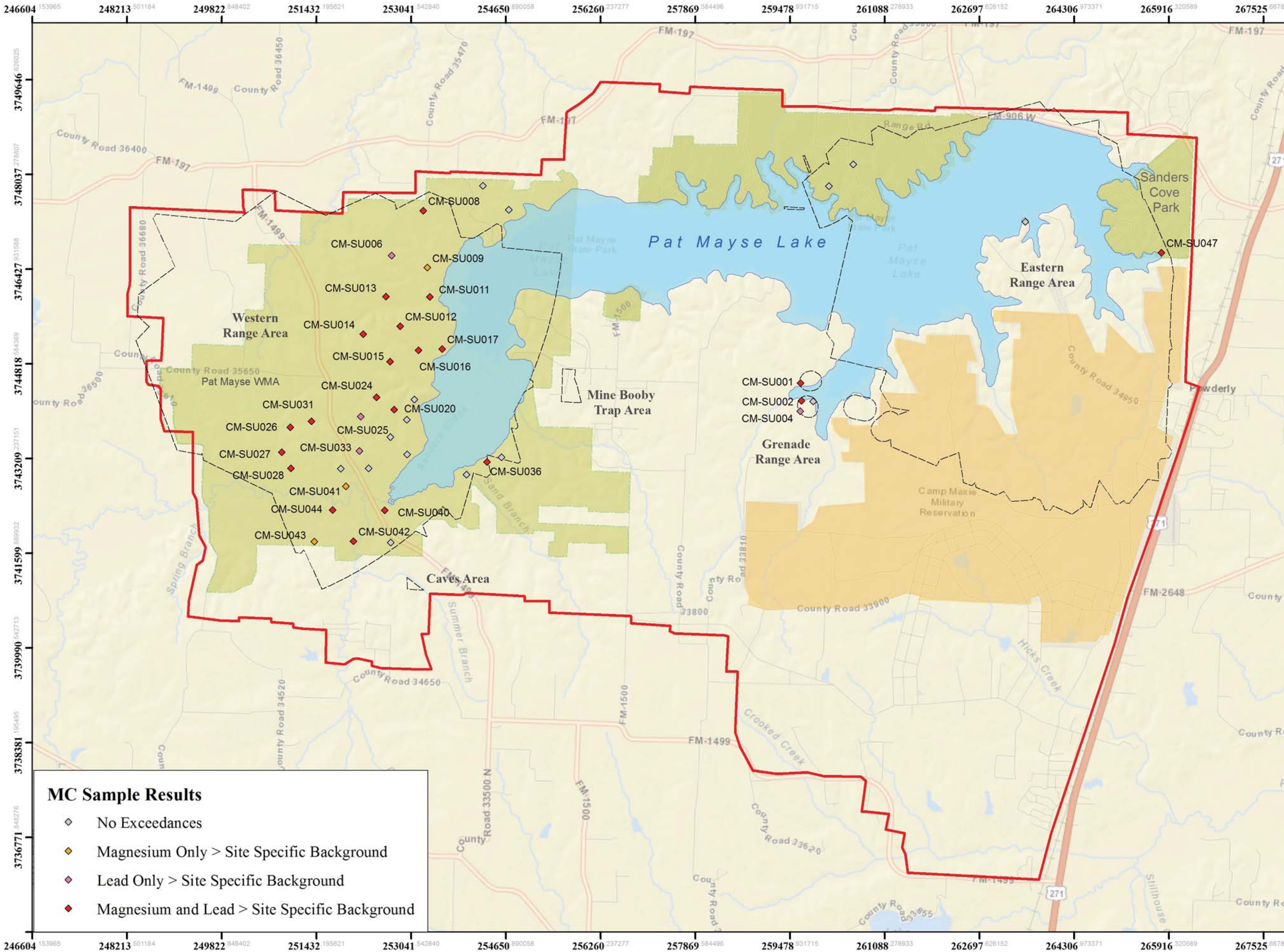
FORMER CAMP MAXEY
LAMAR CO., TX

Prepared For:
U.S. Army Engineering and Support Center, Huntsville

Prepared By:
Explosive Ordnance Technologies, Inc.

DRAWN	VERIFIED	APPROVED
M. Norris	D. Jacobs	J. Daffron
DATE 11/19/13	FILE Map 3-3 Known UXO and MD Figure 6.mxd	
PAGE # 3-3	SCALE 1 inch = 5,280 feet	


Legend
RI MC DUs
Background Sample
Previous UXO Find MC Samples
RI Investigation Boundary
Camp Maxey Range Complex
National Guard Installation
Former Camp Maxey Installation Boundary
Pat Mayse Lake
Pat Mayse State Park and WMA
03°68'
UTM Zone 15 NAD 83 (Meters)
Data Provided By:
Texas Parks & Wildlife Dept.
U.S. Army Corps of Engineers
ESRI
Miles
1 0.5 0 1
1.6 0.8 0 1.6
Kilometers
Location Map:
Former Camp Maxey Lamar County, TX
Map 3-4:
MC Investigation Design
FORMER CAMP MAXEY
LAMAR CO., TX
Prepared For:
U.S. Army Engineering and Support Center, Huntsville
Prepared By:
Explosive Ordnance Technologies, Inc.
DRAWN
M. Norris
VERIFIED
D. Jacobs
APPROVED
J. Daffron
DATE
11/19/13
FILE
Map 3-4 RI Design MC Figure 2.mxd
PAGE #
3-4
SCALE
1 inch = 5,280 feet
Pat Mayse Lake
Western Range Area
Pat Mayse WMA
Mine Booby Trap Area
Grenade Range Area
Eastern Range Area
Caves Area
Sanders Cove Park
Camp Maxie Military Reservation
Powderly
Sumner
FM-197
FM-1499
FM-906 W
FM-1500
FM-2648
FM-79
County Road 36400
County Road 35650
County Road 34950
County Road 33900
County Road 34650
County Road 33620
Summer Branch
Sand Branch
Spring Branch
Crooked Creek
Craddock Creek
Hicks Creek
Little Creek
271
246604 248213 249822 251432 253041 254650 256260 257869 259478 261088 262697 264306 265916 267525
3749646 3748037 3746427 3744818 3743209 3741599 3739990 3738381 3736771



Map 3-5: MC Investigation Results

FORMER CAMP MAXEY
LAMAR CO., TX

Prepared For:
U.S. Army Engineering and Support Center, Huntsville

Prepared By:
Explosive Ordnance Technologies, Inc.

DRAWN	VERIFIED	APPROVED
M. Norris	D. Jacobs	J. Daffron
DATE 11/21/13	FILE Map 3-5 RI Result MC Figure 3.mxd	
PAGE # 3-5	SCALE 1 inch = 5,280 feet	

4 REVISED CONSEPTUAL SITE MODEL AND RESULTS

Based on the results of the RI MEC and MC investigations the Camp Maxey Range Complex MRS is being recommended to be separated into 12 MRSs based on the revised MEC, land use, and exposure profiles. The MC results indicate MC is not a significant concern at the Former Camp Maxey and is not included in the revised CSM analysis. Details concerning the human health and ecological risk associated with exposure to MC at Camp Maxey are provided in Section 6.

4.1 MUNITIONS AND EXPLOSIVES OF CONCERN, LAND USE, AND EXPOSURE PROFILE

The overall site profile has not changed from the original CSM discussed in Section 2.1.2. However, following the RI activities and based on differences in land ownership, current and reasonably anticipated future land use, and potential MEC and MD density, it was determined that specific areas within the Former Camp Maxey should be delineated and evaluated separately moving forward to the FS. Table 4-1 provides details on these parameters as well as a brief description of the recommended MRSs. Map 4-1 shows land use at the Former Camp Maxey and Map 4-2 identifies the revised MRS recommendations.

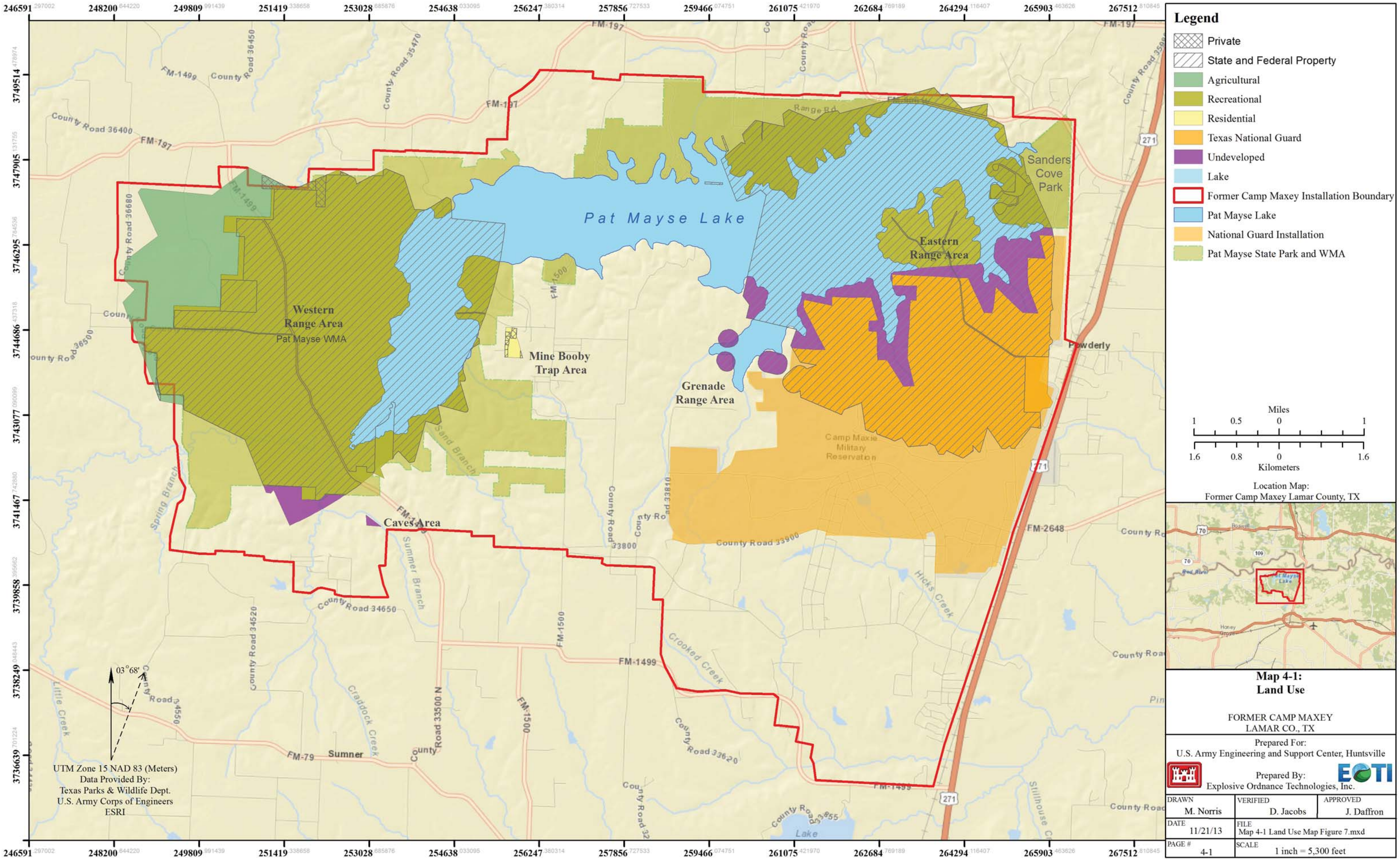
Table 4-1: Revised MRS Delineations

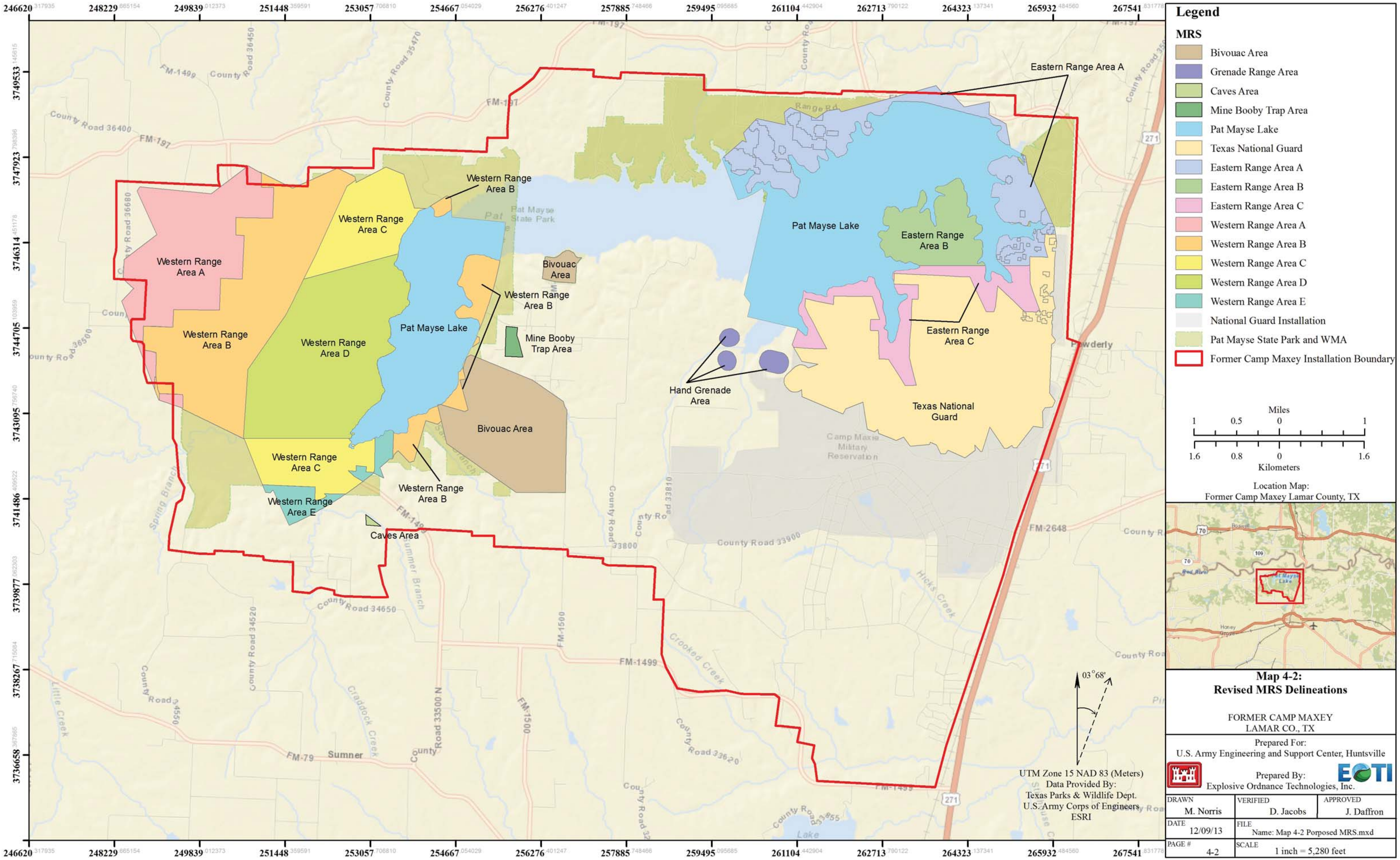
Potential MRS	Land Ownership	Reasonably Anticipated Future Land Use	MEC / MD Density	MRS Description
Western Range Area A (1,310 Acres)	Private	Undeveloped/ Agricultural (i.e., pasture land)	Unconfirmed (no access)	This MRS is located in the northwest portion of the Western Range Area. It is on private property primarily used for agriculture. There was no access to this area during the RI. Historical data indicated that it includes firing points and portions of ranges fans for several ranges. Additional data is needed to characterize the MRS.
Western Range Area B (2,166 Acres)	Public/Private (Pat Mayse WMA)	Recreational (i.e., hunting, hiking, lake access)	Low	This MRS is located in the Western Range Area and included portions of several range fans. It is located primarily within a WMA that is Government owned but accessed by the public for surface recreational activities, such as hiking and hunting. It is a noncontiguous area located east Western Range Area A and along the north and east side of the lake within the Western Range Area. RI data supports the historical data. No MEC was identified during the RI or during previous investigations. The MRS primarily includes area with low MD density. This may indicate that it was on the edge of the main impact/target area.

Potential MRS	Land Ownership	Reasonably Anticipated Future Land Use	MEC / MD Density	MRS Description
Western Range Area C (1,104 Acres)	Public (Pat Mayse WMA)	Recreational (i.e., hunting, hiking, lake access)	Medium/High	This MRS is located in the North-Central and South-Central sections of the Western Range Area. It is located within a WMA that is Government owned but accessed by the public for surface recreational activities, such as hiking and hunting. No MEC was located in this MRS during the RI or during previous investigations; however there are areas with medium and high MD densities that is consistent with potential target areas within impact areas.
Western Range Area D (1,870 Acres)	Public (Pat Mayse WMA)	Recreational (i.e., hunting, hiking, lake access)	Medium/High	This MRS is located in what is believed to be the central impact area for the western ranges. It is located within a WMA that is Government owned but accessed by the public for surface recreational activities, such as hiking and hunting. RI results include UXO located on or just below the ground surface and several areas with high or medium MD density.
Western Range Area E (133 Acres)	Private	Undeveloped	Medium/High	This MRS includes private, undeveloped property in the southern portion of the Western Range Area. Access was not provided to this area during the RI.
Eastern Range Area A (1,124 Acres)	Public (Pat Mayse State Park)	Recreational (i.e., camping, hunting, hiking, lake access)	Low/Medium	This MRS is located along the North and East shore of the lake within the Eastern Range Area. It includes area primarily within a state park, used for recreation, which may include activities such as camping, hiking and accessing the lake. It includes the dam area and former ranges that were investigated and partially cleared in a previous removal action. The previous removal action included the use of geophysical transects to locate potential former target areas and then selected grids were cleared in order to reduce the potential for exposure to MEC. No MEC was encountered in this MRS during the RI and only low concentrations of MD were identified.

Potential MRS	Land Ownership	Reasonably Anticipated Future Land Use	MEC / MD Density	MRS Description
Eastern Range Area B (540 Acres)	Public	Recreational (i.e., camping, hunting, hiking, lake access)	Medium/High	This MRS is located on the peninsula that extends into the south side of Pat Mayse Lake in the center of the Eastern Range Area. The property is used for camping and other recreational activities. Recreational activities in this MRS are primarily on the surface but there may be some shallow subsurface exposure associated with some camping activities. Although only one MEC was located within this MRS during the RI, previous investigation/removal projects have identified some MEC in the MRS.
Eastern Range Area C (563 Acres)	Public (Pat Mayse State Park)	Undeveloped/ Recreational (i.e., hiking, lake access)	Medium/High	This MRS is located on the southern shore of the lake within the Eastern Range Area. It is located along a narrow band between the National Guard facility and Pat Mayse Lake. Although not designated for public recreational use, the area can be accessed by lake or over land. Potential exposure could result from surface related recreational activities, such as hiking or fishing along the lake shore. No MEC item was located on the surface during the RI and MD density was generally low throughout the MRS.
Grenade Range Area (97 Acres)	Public	Undeveloped	Medium/High	This MRS includes three areas identified in historical documents as grenade training areas, located on the south side of the lake west of the Eastern Range Area. The MRS is located on public land that may be accessed for recreational activities associated with Pat Mayse Lake, such as hiking and fishing. The RI results identified MD which could be an indication of potential MEC in the area.
Cave Training Area (7 Acres)	Private	Undeveloped	Unconfirmed (no access)	This MRS is a small area located south of the Western Range Area. It is located within a privately owned parcel which was not accessible during the RI. There is little historical information but anecdotal information suggests that the area was used to simulated cave clearing operations. Additional data is needed to characterize the MRS.

Potential MRS	Land Ownership	Reasonably Anticipated Future Land Use	MEC / MD Density	MRS Description
Mine and Booby Trap Training Area (35 Acres)	Private	Residential	Low/Medium	This MRS is located east of the Western Range Area and is on privately owned residential parcels. Historical records indicated that the area was used to train with practice mines. Collection of data during the RI was limited by a lack of access to several private parcels in the area; however during a reconnaissance of the area a property owner provided information and evidence that confirmed mine training in the area. Practice mines used during the time that the Former Camp Maxey was in operation, contained a small "puff charge" that was not intended to cause harm.
Bivouac Area (1,125 Acres)	Public and Private	Recreational (i.e., hunting and hiking) and Residential	Unconfirmed (not investigated)	This MRS fall outside of the current MRS boundary identified in FUDSMIS and was not characterized or evaluated in the RI/FS. It is an area previously identified as a Bivouac area. MEC has been located in portions of this area. Additional data is needed to characterize the MRS.


Legend
Private
State and Federal Property
Agricultural
Recreational
Residential
Texas National Guard
Undeveloped
Lake
Former Camp Maxey Installation Boundary
Pat Mayse Lake
National Guard Installation
Pat Mayse State Park and WMA
Pat Mayse Lake
Western Range Area
Pat Mayse WMA
Mine Booby Trap Area
Grenade Range Area
Eastern Range Area
Sanders Cove Park
Camp Maxie Military Reservation
Caves Area
Powderly
Sumner
FM-197
FM-1499
FM-1500
FM-2648
FM-79
Miles
1 0.5 0 1
1.6 0.8 0 1.6
Kilometers
Location Map:
Former Camp Maxey Lamar County, TX
UTM Zone 15 NAD 83 (Meters)
Data Provided By:
Texas Parks & Wildlife Dept.
U.S. Army Corps of Engineers
ESRI
Map 4-1:
Land Use
FORMER CAMP MAXEY
LAMAR CO., TX
Prepared For:
U.S. Army Engineering and Support Center, Huntsville
Prepared By:
Explosive Ordnance Technologies, Inc.
DRAWN M. Norris
VERIFIED D. Jacobs
APPROVED J. Daffron
DATE 11/21/13
FILE Map 4-1 Land Use Map Figure 7.mxd
PAGE # 4-1
SCALE 1 inch = 5,300 feet



Map 4-2:
Revised MRS Delineations

5 CONTAMINANT FATE AND TRANSPORT

5.1 CONTAMINANT FATE AND TRANSPORT PATHWAY ANALYSIS

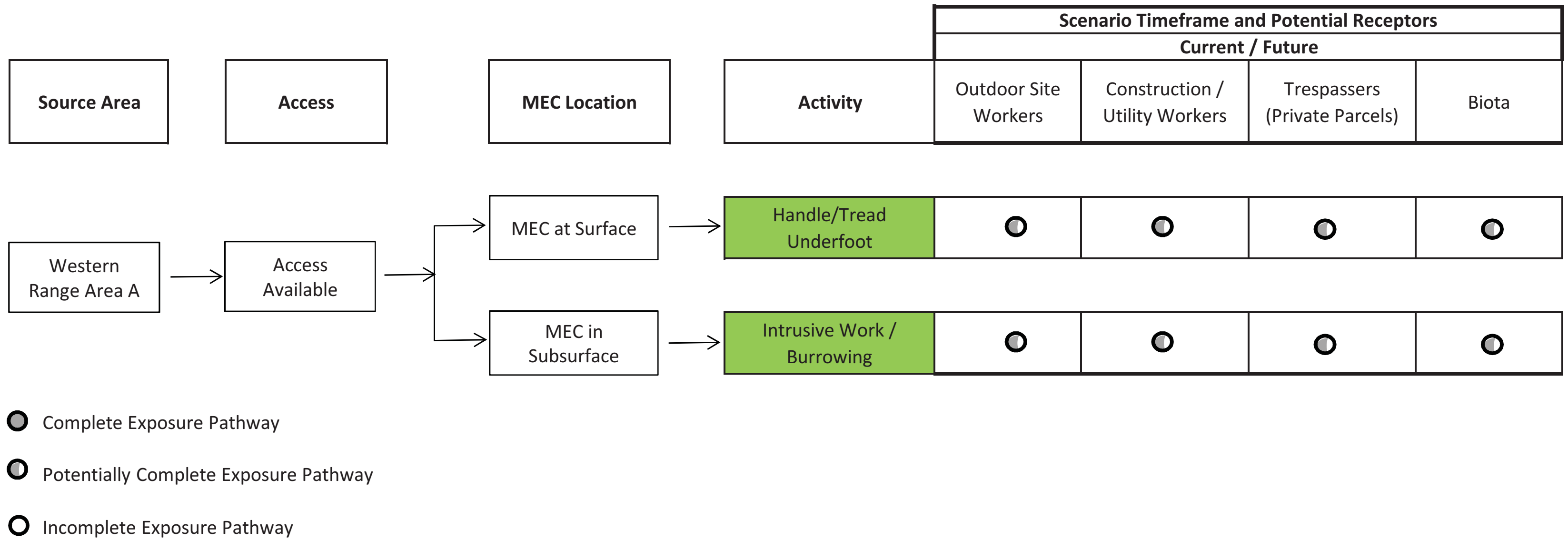
5.1.1 Munitions and Explosives of Concern Pathway Analysis

The MEC pathway analysis for the Former Camp Maxey, shows that there are complete and potentially complete pathways for all human and ecological receptors of MEC at each of the 12 MRSs above based on the results of the RI field work, previous investigations, and existing data gaps. This includes receptors for handle/treads underfoot contact (surface), as well as work that may be conducted on the ground surface. Complete and potentially complete exposure pathways also exist in the subsurface soil for human receptors, such as outdoor site workers who may perform intrusive work and recreational visitors who may visit the site and disturb subsurface soil. Recreational visitors to the parks and wildlife management areas are authorized to camp in designated areas and may engage in intrusive activity involving hand excavations to depths generally less than 12 inches. The subsurface pathway is also complete for biota that may nest or burrow at the MRS. Figures in Section 5 include details concerning specific pathways for each recommended MRS.

5.1.2 Munitions Constituent Pathway Analysis

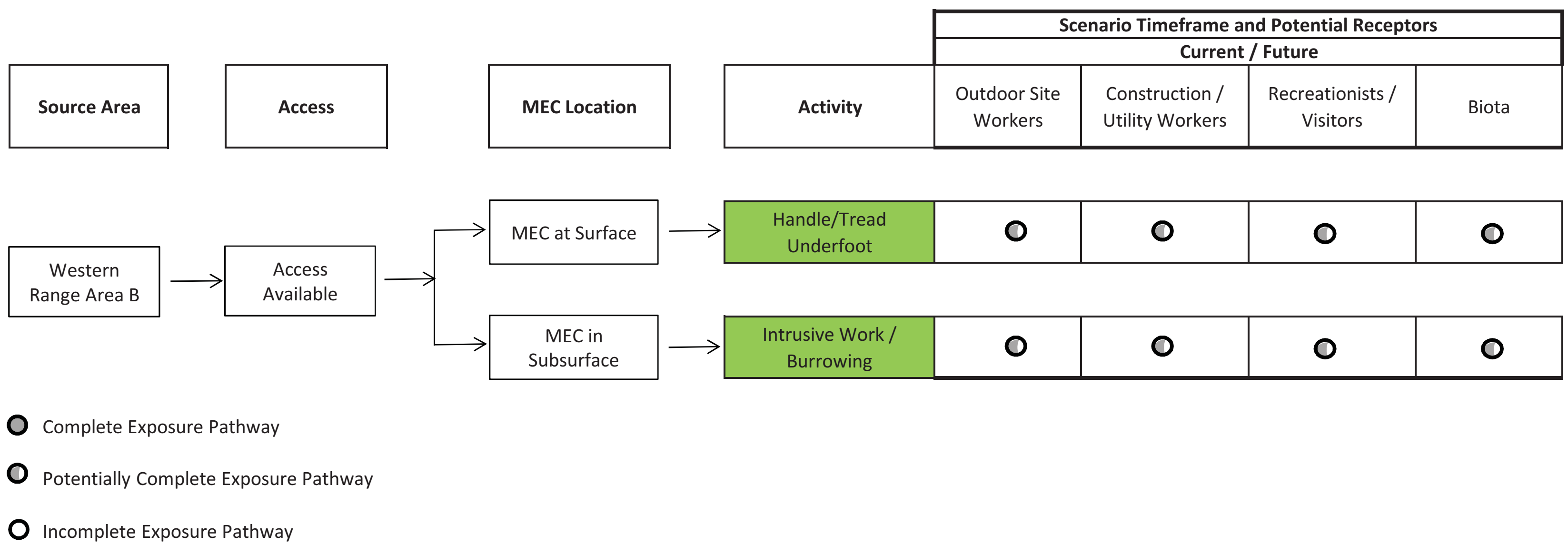
5.1.2.1. Due to the nature of historical military activities at the site, MC can exist and may present a risk of adverse health effects, if human exposure occurs. MC can be released from fully intact munitions through corrosion and breaching of the casing or the development of cracks, from dissolved filler leaking through screw threads on the munitions casing, or exposed filler that resulted from incomplete detonation. This explosive filler may be scattered over the MRS or partially encased in the remains of the munitions casing. Migration of MC may occur naturally through surface soil erosion, plant or animal uptake, or by human activities such as maintenance and site work. MC in surface soil may migrate to the subsurface with infiltrating water. If soil erosion and subsequent surface runoff carries MC into inland impounded water bodies, migration of MC through surface water and sediment may occur as well. MC in soil/sediment may also migrate through leaching to groundwater; however, shallow groundwater is not a source of potable water at the Former Camp Maxey.

5.1.2.2. Based on sampling data, a Human Health Risk Assessment (HHRA) and Screening Level Ecological Risk Assessment (SLERA) were conducted (presented in Section 6). The results of the HHRA and SLERA demonstrate that no Contaminants of Concern (COCs) were identified for either at the site. As such, the exposure pathways are all incomplete for human receptors of MC. Figures in Section 5 illustrate the incomplete pathways to human and ecological receptors for the entire Former Camp Maxey.



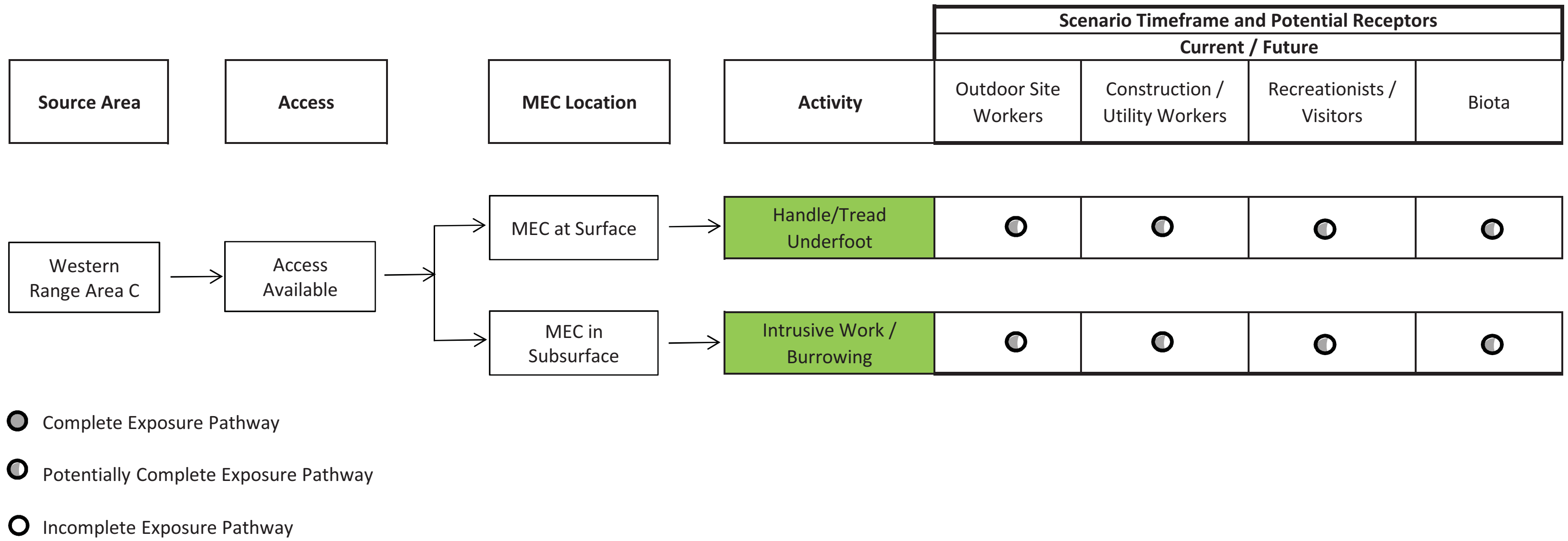
EXPOSURE PATHWAY ANALYSIS FOR MEC - WESTERN RANGE AREA A
Remedial Investigation
Paris, Texas

FIGURE 5-1



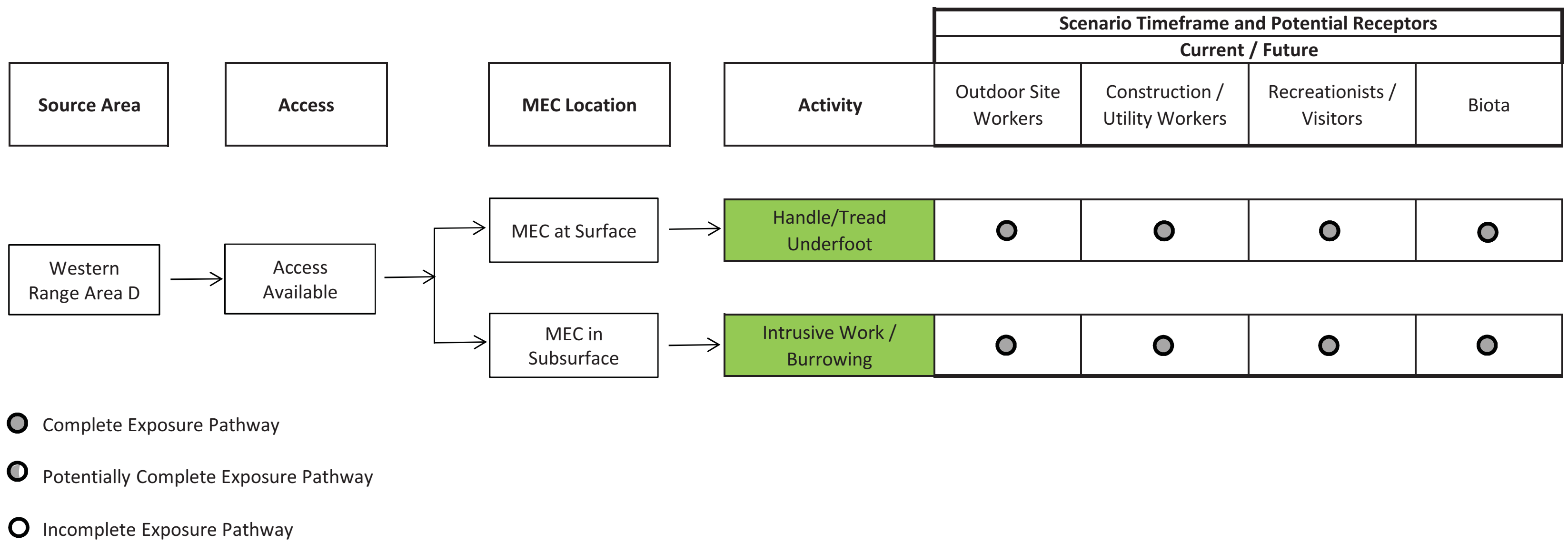
EXPOSURE PATHWAY ANALYSIS FOR MEC - WESTERN RANGE AREA B
Remedial Investigation
Paris, Texas

FIGURE 5-2



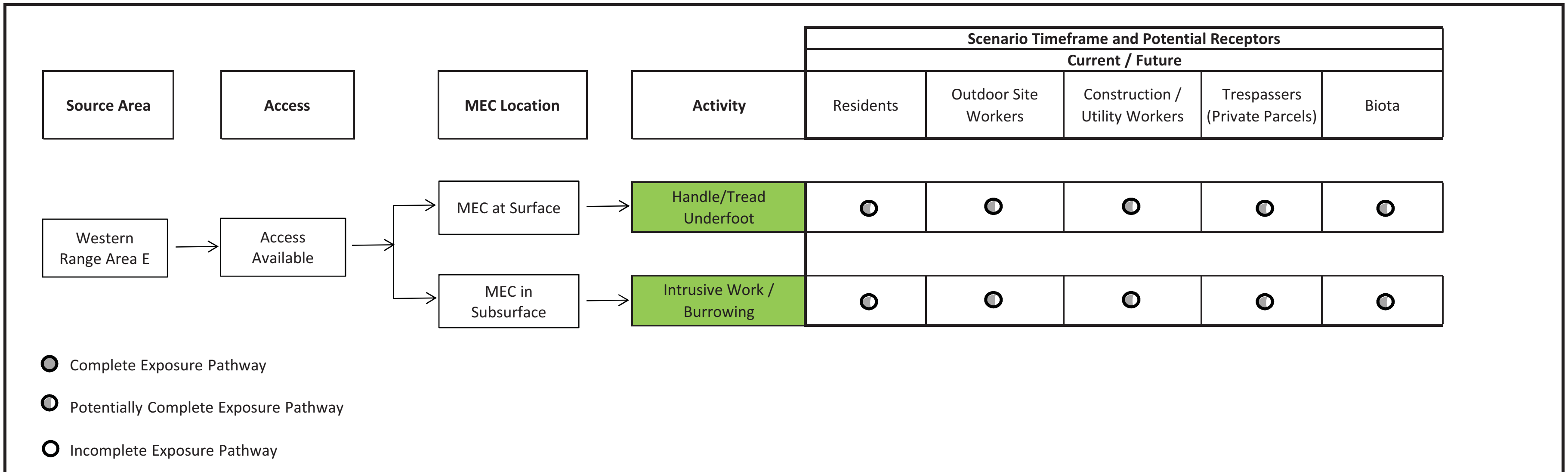
EXPOSURE PATHWAY ANALYSIS FOR MEC - WESTERN RANGE AREA C
Remedial Investigation
Paris, Texas

FIGURE 5-3



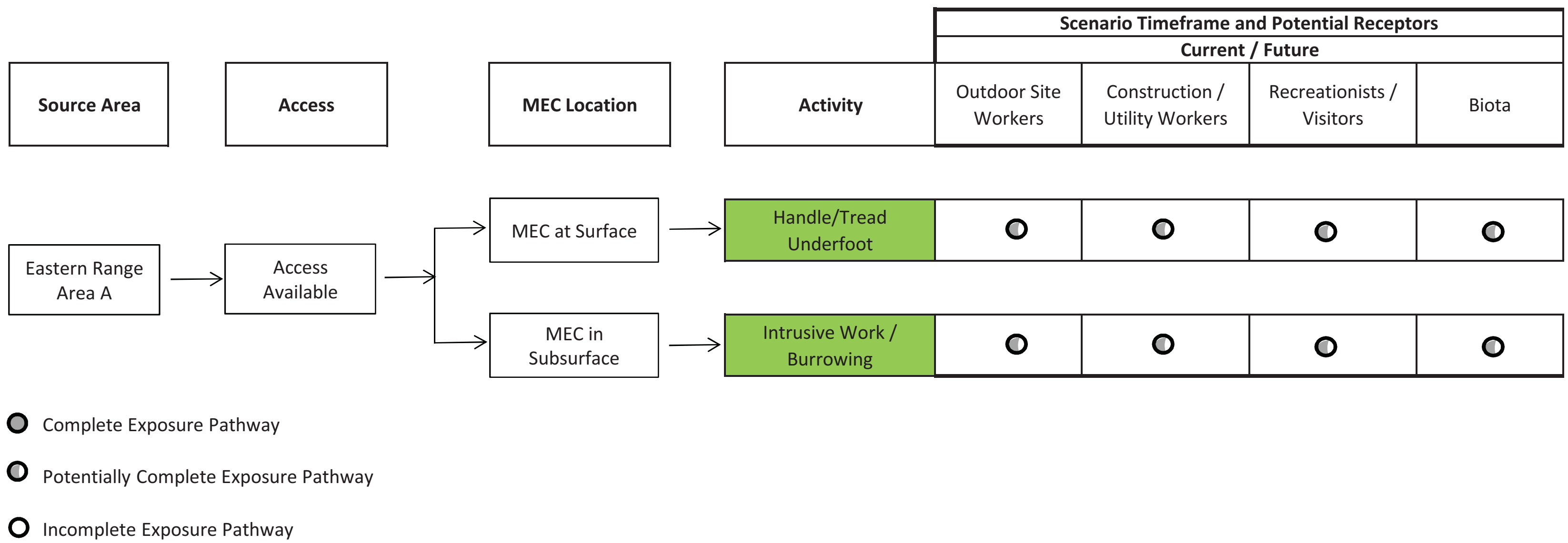
EXPOSURE PATHWAY ANALYSIS FOR MEC - WESTERN RANGE AREA D
Remedial Investigation
Paris, Texas

FIGURE 5-4



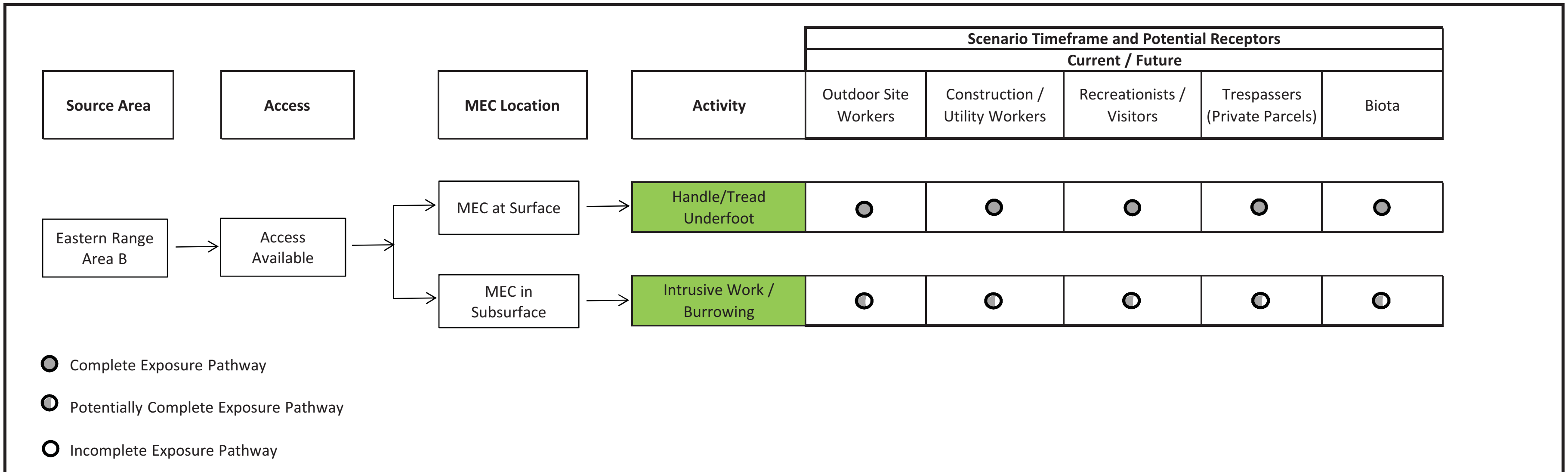
EXPOSURE PATHWAY ANALYSIS FOR MEC - WESTERN RANGE AREA E
Remedial Investigation
Paris, Texas

FIGURE 5-5



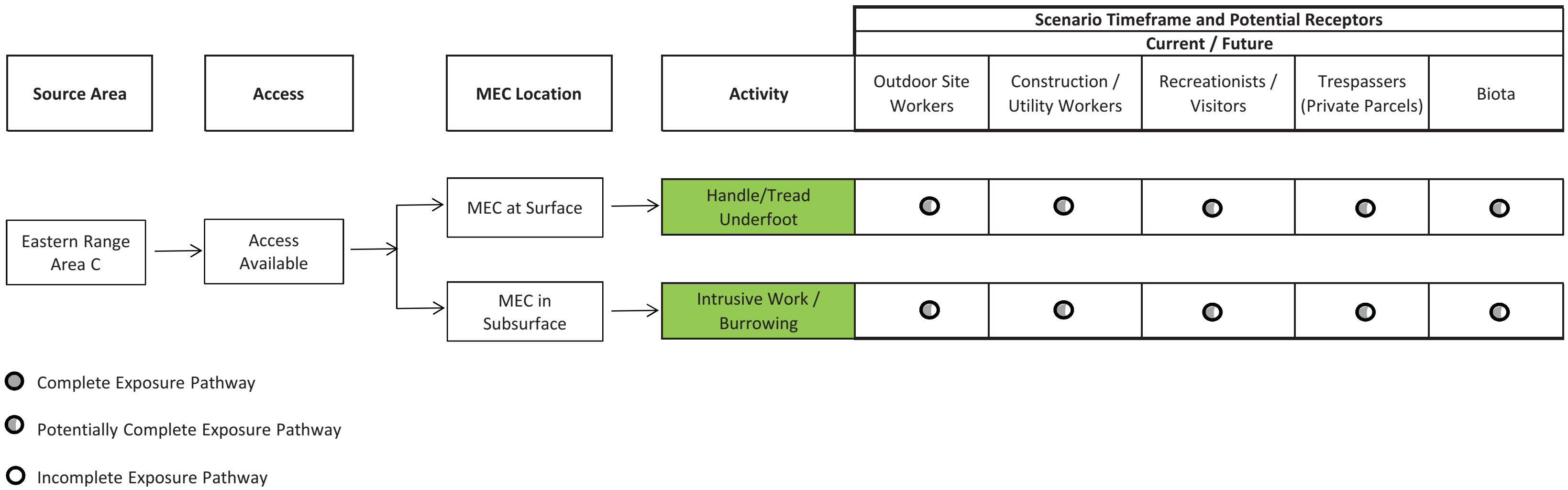
EXPOSURE PATHWAY ANALYSIS FOR MEC - EASTERN RANGE AREAS A
Remedial Investigation
Paris, Texas

FIGURE 5-6



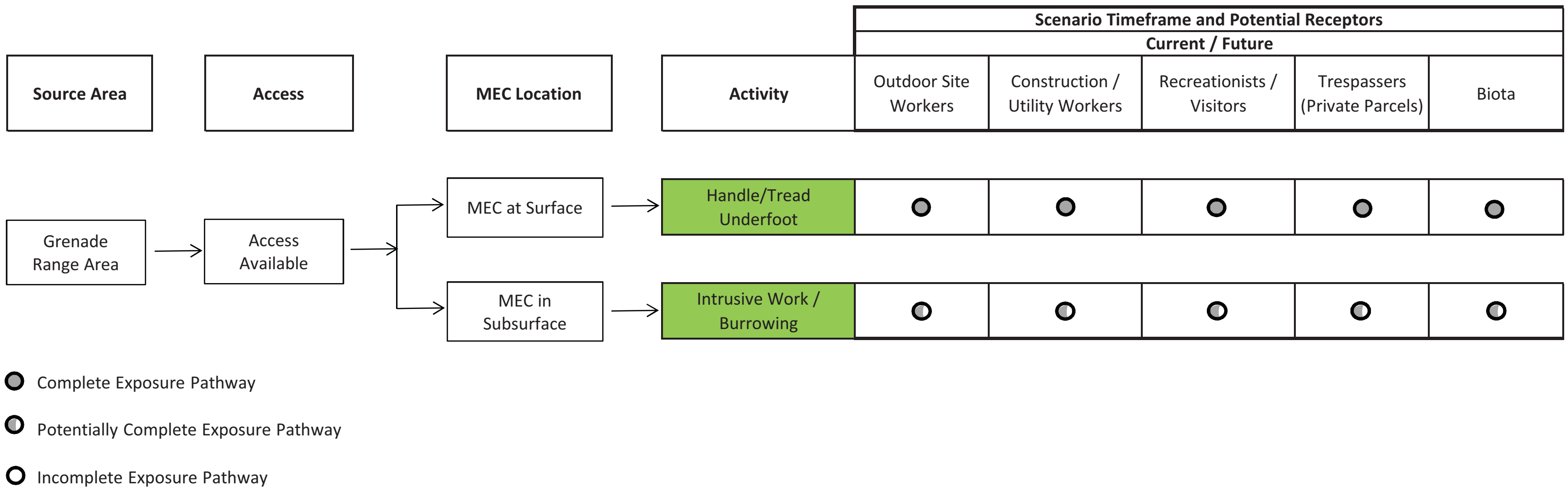
EXPOSURE PATHWAY ANALYSIS FOR MEC - EASTERN RANGE AREA B
Remedial Investigation
Paris, Texas

FIGURE 5-7



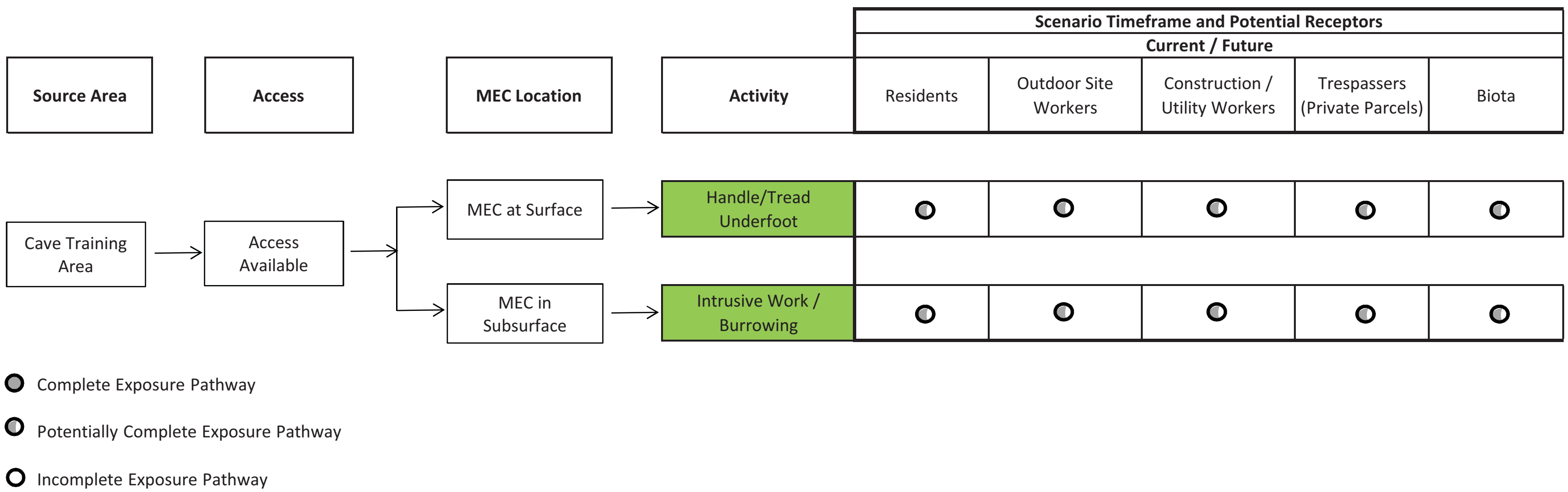
EXPOSURE PATHWAY ANALYSIS FOR MEC - EASTERN RANGE AREA C
Remedial Investigation
Paris, Texas

FIGURE 5-8



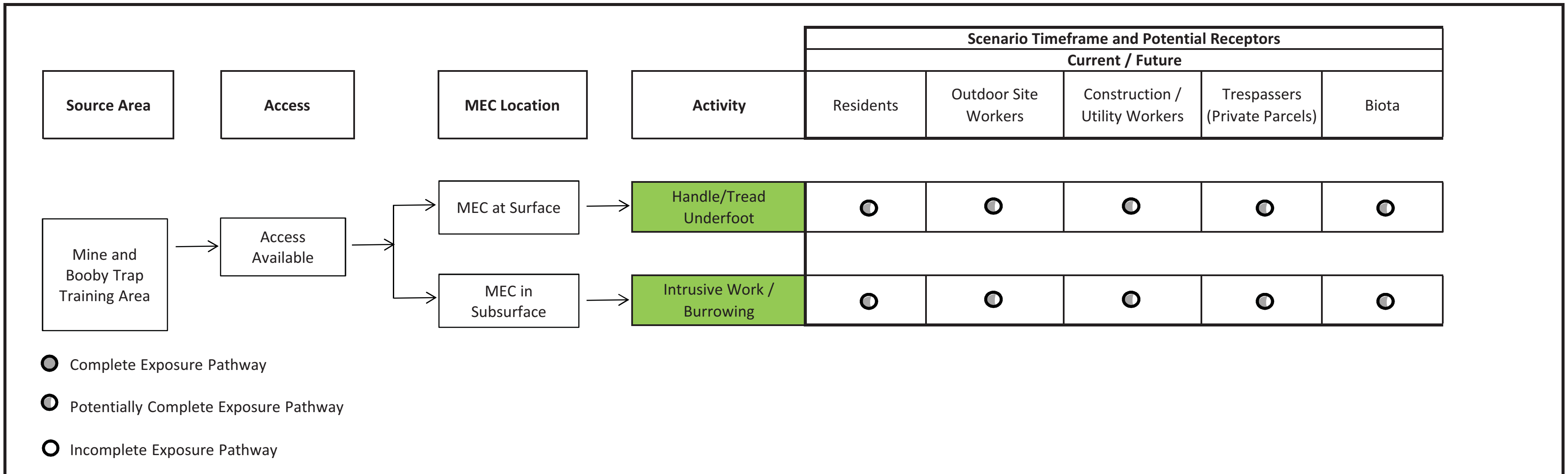
EXPOSURE PATHWAY ANALYSIS FOR MEC - GRENADE RANGE AREA
Remedial Investigation
Paris, Texas

FIGURE 5-9



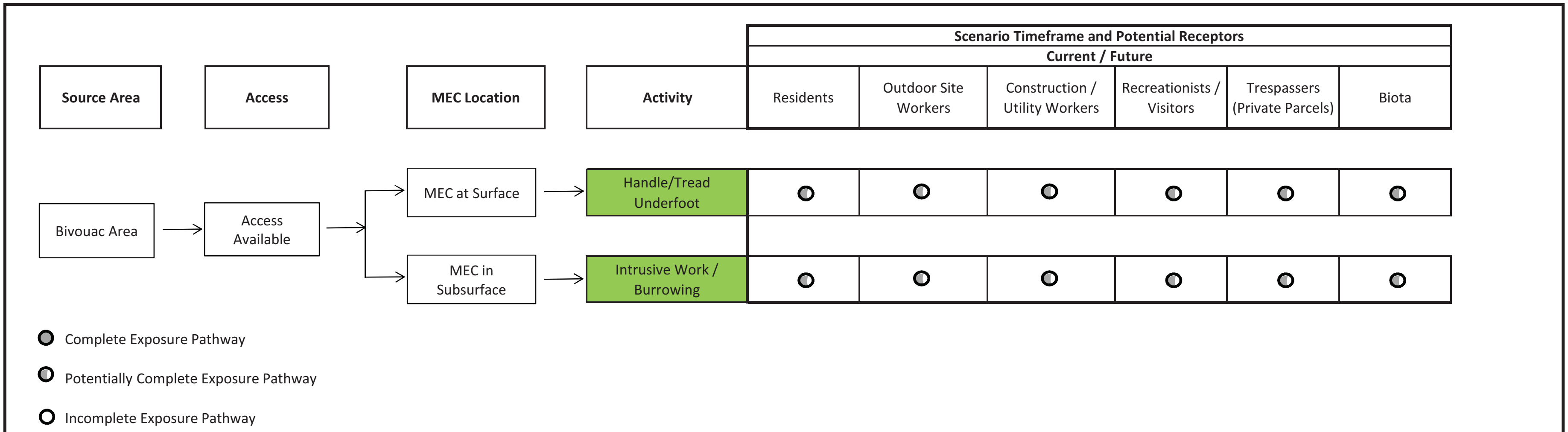
EXPOSURE PATHWAY ANALYSIS FOR MEC - CAVE TRAINING AREA
Remedial Investigation
Paris, Texas

FIGURE 5-10



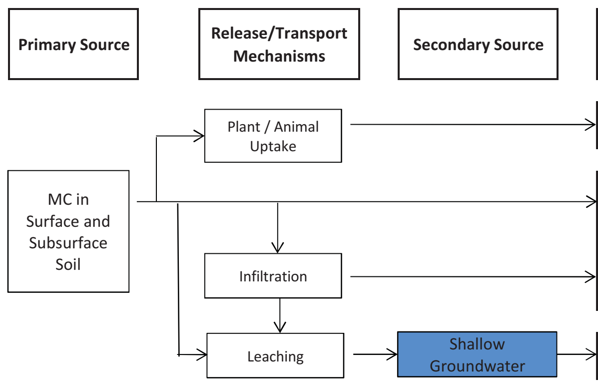
EXPOSURE PATHWAY ANALYSIS FOR MEC - MINE AND BOOBY TRAP TRAINING AREA
Remedial Investigation
Paris, Texas

FIGURE 5-11



EXPOSURE PATHWAY ANALYSIS FOR MEC - BIVUOAC AREA
Remedial Investigation
Paris, Texas

FIGURE 5-12



Exposure Media	Exposure Routes	Residents (Current / Future)	Outdoor Site Workers (Current / Future)	Construction / Utility Workers (Current / Future)	Recreationists / Visitors / Tourists (Current / Future)	Trespassers (Private Parcels) (Current / Future)	Construction Workers (Future)
Vegetation	Ingestion	○	○	○	○	○	○
Domestic Animals/Game	Ingestion	○	○	○	○	○	○
Surface Soil	Ingestion	○	○	○	○	○	○
	Dermal Contact	○	○	○	○	○	○
	Inhalation (Dust)	○	○	○	○	○	○
Subsurface Soil	Ingestion	○	○	○	○	○	○
	Dermal Contact	○	○	○	○	○	○
	Inhalation (Dust)	○	○	○	○	○	○
Shallow Groundwater	Ingestion	○	○	○	○	○	○
	Dermal Contact	○	○	○	○	○	○

Scenario Timeframe and Potential Human Receptor Populations

Complete Exposure Pathway

Potentially Complete Exposure Pathway

○ Incomplete Exposure Pathway

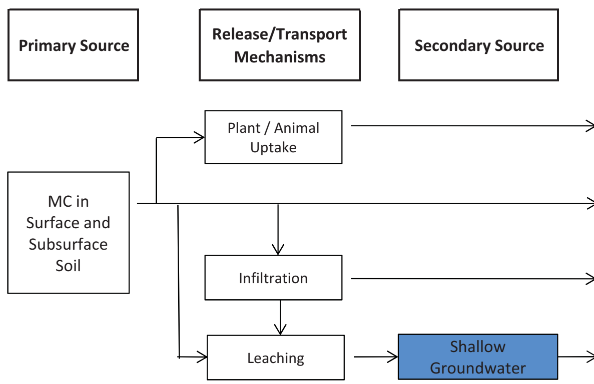
Notes:

1. Inhalation of volatile chemicals is not a potential exposure route, because the MC of concern for the Site are not volatile.

1. The determination of incomplete exposure pathways is dependent on the data evaluated for this RI and is based on analyte concentrations being less than human health risk-based screening levels. Data gaps and other sources of uncertainty are described in the RI Report text.

EXPOSURE PATHWAY ANALYSIS FOR MC - WESTERN RANGE AREA A
Remedial Investigation
Paris, Texas

FIGURE 5-13



Exposure Media	Exposure Routes	Residents	Outdoor Site Workers	Construction / Utility Workers	Recreationists / Visitors / Tourists	Trespassers (Private Parcels)	Construction Workers
		Scenario Timeframe and Potential Human Receptor Populations					
		Current / Future					Future
Vegetation	Ingestion	○	○	○	○	○	○
Domestic Animals/Game	Ingestion	○	○	○	○	○	○
Surface Soil	Ingestion	○	○	○	○	○	○
	Dermal Contact	○	○	○	○	○	○
	Inhalation (Dust)	○	○	○	○	○	○
Subsurface Soil	Ingestion	○	○	○	○	○	○
	Dermal Contact	○	○	○	○	○	○
	Inhalation (Dust)	○	○	○	○	○	○
Shallow Groundwater	Ingestion	○	○	○	○	○	○
	Dermal Contact	○	○	○	○	○	○

● Complete Exposure Pathway

◉ Potentially Complete Exposure Pathway

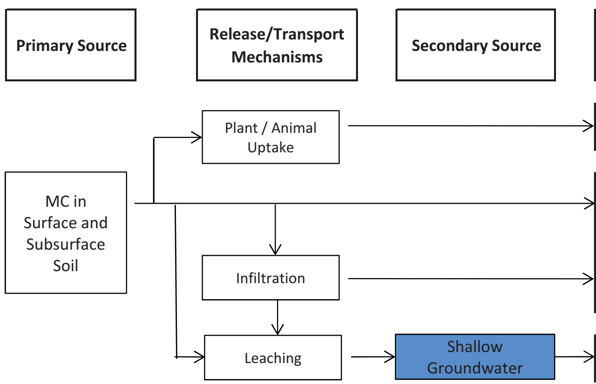
○ Incomplete Exposure Pathway

Notes:
1. Inhalation of volatile chemicals is not a potential exposure route, because the MC of concern for the Site are not volatile.

1. The determination of incomplete exposure pathways is dependent on the data evaluated for this RI and is based on analyte concentrations being less than human health risk-based screening levels. Data gaps and other sources of uncertainty are described in the RI Report text.

EXPOSURE PATHWAY ANALYSIS FOR MC - WESTERN RANGE AREA B
Remedial Investigation
Paris, Texas

FIGURE 5-14



Exposure Media	Exposure Routes	Residents	Outdoor Site Workers	Construction / Utility Workers	Recreationists / Visitors / Tourists	Trespassers (Private Parcels)	Construction Workers
		Scenario Timeframe and Potential Human Receptor Populations					
		Current / Future					**Future**
Vegetation	Ingestion	○	○	○	○	○	○
Domestic Animals/Game	Ingestion	○	○	○	○	○	○
Surface Soil	Ingestion	○	○	○	○	○	○
	Dermal Contact	○	○	○	○	○	○
	Inhalation (Dust)	○	○	○	○	○	○
Subsurface Soil	Ingestion	○	○	○	○	○	○
	Dermal Contact	○	○	○	○	○	○
	Inhalation (Dust)	○	○	○	○	○	○
Shallow Groundwater	Ingestion	○	○	○	○	○	○
	Dermal Contact	○	○	○	○	○	○

● Complete Exposure Pathway

◐ Potentially Complete Exposure Pathway

○ Incomplete Exposure Pathway

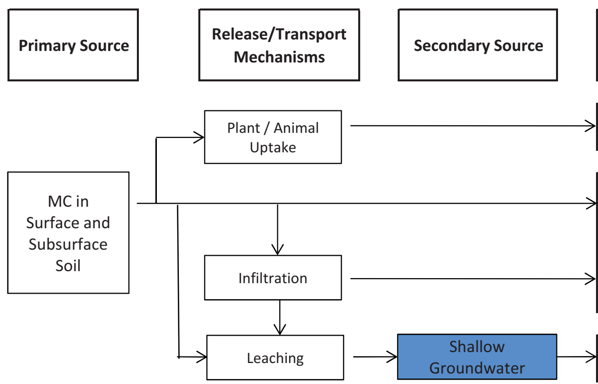
Notes:

1. Inhalation of volatile chemicals is not a potential exposure route, because the MC of concern for the Site are not volatile.

1. The determination of incomplete exposure pathways is dependent on the data evaluated for this RI and is based on analyte concentrations being less than human health risk-based screening levels. Data gaps and other sources of uncertainty are described in the RI Report text.

EXPOSURE PATHWAY ANALYSIS FOR MC - WESTERN RANGE AREA C
Remedial Investigation
Paris, Texas

FIGURE 5-15



Exposure Media	Exposure Routes	Residents	Outdoor Site Workers	Construction / Utility Workers	Recreationists / Visitors / Tourists	Trespassers (Private Parcels)	Construction Workers
		Scenario Timeframe and Potential Human Receptor Populations					
		Current / Future					**Future**
Vegetation	Ingestion	○	○	○	○	○	○
Domestic Animals/Game	Ingestion	○	○	○	○	○	○
Surface Soil	Ingestion	○	○	○	○	○	○
	Dermal Contact	○	○	○	○	○	○
	Inhalation (Dust)	○	○	○	○	○	○
Subsurface Soil	Ingestion	○	○	○	○	○	○
	Dermal Contact	○	○	○	○	○	○
	Inhalation (Dust)	○	○	○	○	○	○
Shallow Groundwater	Ingestion	○	○	○	○	○	○
	Dermal Contact	○	○	○	○	○	○

● Complete Exposure Pathway

◉ Potentially Complete Exposure Pathway

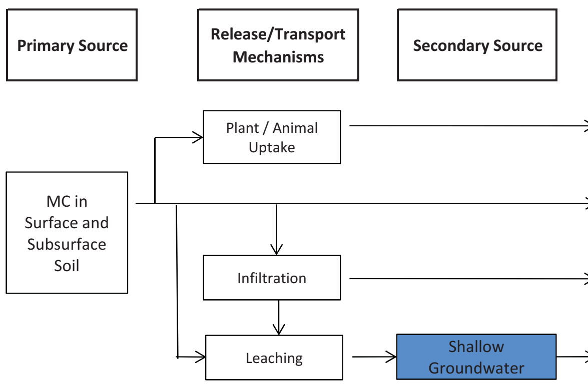
○ Incomplete Exposure Pathway

Notes:
1. Inhalation of volatile chemicals is not a potential exposure route, because the MC of concern for the Site are not volatile.

1. The determination of incomplete exposure pathways is dependent on the data evaluated for this RI and is based on analyte concentrations being less than human health risk-based screening levels. Data gaps and other sources of uncertainty are described in the RI Report text.

EXPOSURE PATHWAY ANALYSIS FOR MC - WESTERN RANGE AREA D
Remedial Investigation
Paris, Texas

FIGURE 5-16



Exposure Media	Exposure Routes	Residents	Outdoor Site Workers	Construction / Utility Workers	Recreationists / Visitors / Tourists	Trespassers (Private Parcels)	Construction Workers
		Scenario Timeframe and Potential Human Receptor Populations					
		Current / Future					**Future**
Vegetation	Ingestion	○	○	○	○	○	○
Domestic Animals/Game	Ingestion	○	○	○	○	○	○
Surface Soil	Ingestion	○	○	○	○	○	○
	Dermal Contact	○	○	○	○	○	○
	Inhalation (Dust)	○	○	○	○	○	○
Subsurface Soil	Ingestion	○	○	○	○	○	○
	Dermal Contact	○	○	○	○	○	○
	Inhalation (Dust)	○	○	○	○	○	○
Shallow Groundwater	Ingestion	○	○	○	○	○	○
	Dermal Contact	○	○	○	○	○	○

● Complete Exposure Pathway

◉ Potentially Complete Exposure Pathway

○ Incomplete Exposure Pathway

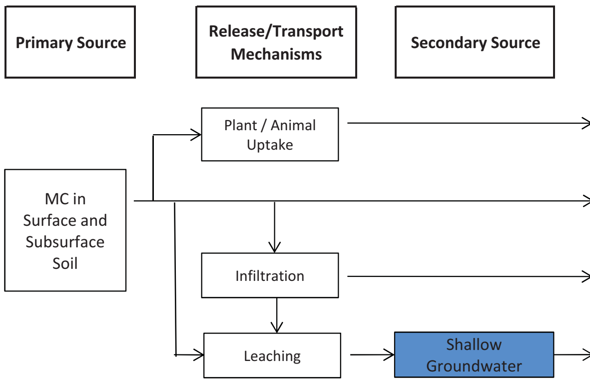
Notes:

1. Inhalation of volatile chemicals is not a potential exposure route, because the MC of concern for the Site are not volatile.

1. The determination of incomplete exposure pathways is dependent on the data evaluated for this RI and is based on analyte concentrations being less than human health risk-based screening levels. Data gaps and other sources of uncertainty are described in the RI Report text.

EXPOSURE PATHWAY ANALYSIS FOR MC - WESTERN RANGE AREA E
Remedial Investigation
Paris, Texas

FIGURE 5-17



		Scenario Timeframe and Potential Human Receptor Populations					
		Current / Future					Future
Exposure Media	Exposure Routes	Residents	Outdoor Site Workers	Construction / Utility Workers	Recreationists / Visitors / Tourists	Trespassers (Private Parcels)	Construction Workers
Vegetation	Ingestion	○	○	○	○	○	○
Domestic Animals/Game	Ingestion	○	○	○	○	○	○
Surface Soil	Ingestion	○	○	○	○	○	○
	Dermal Contact	○	○	○	○	○	○
	Inhalation (Dust)	○	○	○	○	○	○
Subsurface Soil	Ingestion	○	○	○	○	○	○
	Dermal Contact	○	○	○	○	○	○
	Inhalation (Dust)	○	○	○	○	○	○
Shallow Groundwater	Ingestion	○	○	○	○	○	○
	Dermal Contact	○	○	○	○	○	○

- Complete Exposure Pathway
- Potentially Complete Exposure Pathway
- ○ Incomplete Exposure Pathway

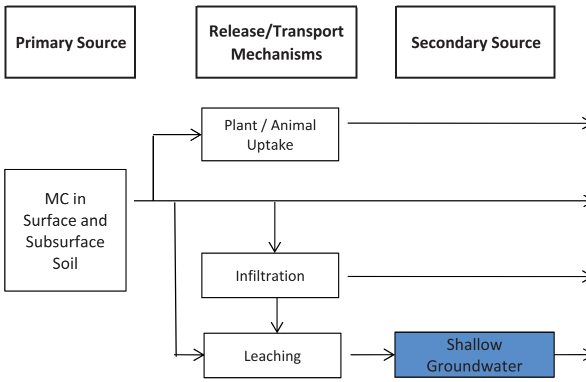
Notes:

1. Inhalation of volatile chemicals is not a potential exposure route, because the MC of concern for the Site are not volatile.

1. The determination of incomplete exposure pathways is dependent on the data evaluated for this RI and is based on analyte concentrations being less than human health risk-based screening levels. Data gaps and other sources of uncertainty are described in the RI Report text.

EXPOSURE PATHWAY ANALYSIS FOR MC - EASTERN RANGE AREA A
Remedial Investigation
Paris, Texas

FIGURE 5-18



Exposure Media	Exposure Routes	Current / Future: Residents	Current / Future: Outdoor Site Workers	Current / Future: Construction / Utility Workers	Current / Future: Recreationists / Visitors / Tourists	Current / Future: Trespassers (Private Parcels)	Future: Construction Workers
Vegetation	Ingestion	○	○	○	○	○	○
Domestic Animals/Game	Ingestion	○	○	○	○	○	○
Surface Soil	Ingestion	○	○	○	○	○	○
	Dermal Contact	○	○	○	○	○	○
	Inhalation (Dust)	○	○	○	○	○	○
Subsurface Soil	Ingestion	○	○	○	○	○	○
	Dermal Contact	○	○	○	○	○	○
	Inhalation (Dust)	○	○	○	○	○	○
Shallow Groundwater	Ingestion	○	○	○	○	○	○
	Dermal Contact	○	○	○	○	○	○

Scenario Timeframe and Potential Human Receptor Populations

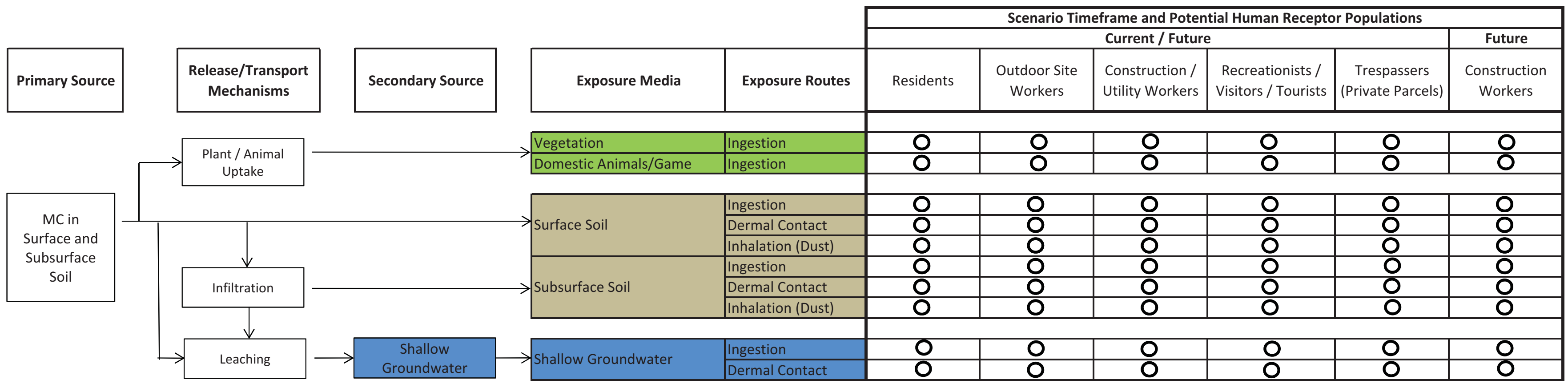
- ● Complete Exposure Pathway
- ◐ Potentially Complete Exposure Pathway
- ○ Incomplete Exposure Pathway

Notes:
1. Inhalation of volatile chemicals is not a potential exposure route, because the MC of concern for the Site are not volatile.

1. The determination of incomplete exposure pathways is dependent on the data evaluated for this RI and is based on analyte concentrations being less than human health risk-based screening levels. Data gaps and other sources of uncertainty are described in the RI Report text.

EXPOSURE PATHWAY ANALYSIS FOR MC - EASTERN RANGE AREA B
Remedial Investigation
Paris, Texas

FIGURE 5-19



- Complete Exposure Pathway
- Potentially Complete Exposure Pathway
- Incomplete Exposure Pathway

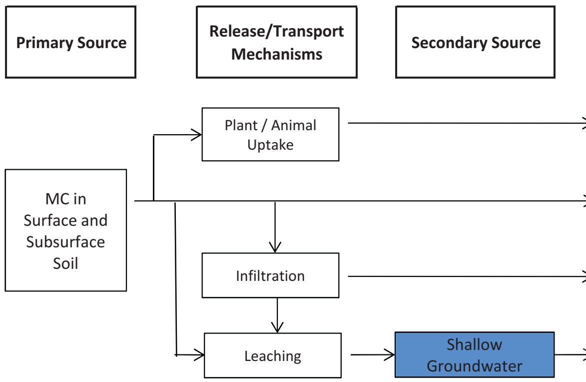
Notes:

1. Inhalation of volatile chemicals is not a potential exposure route, because the MC of concern for the Site are not volatile.

1. The determination of incomplete exposure pathways is dependent on the data evaluated for this RI and is based on analyte concentrations being less than human health risk-based screening levels. Data gaps and other sources of uncertainty are described in the RI Report text.

EXPOSURE PATHWAY ANALYSIS FOR MC - EASTERN RANGE AREA C
Remedial Investigation
Paris, Texas

FIGURE 5-20



		Scenario Timeframe and Potential Human Receptor Populations					
		Current / Future					Future
Exposure Media	Exposure Routes	Residents	Outdoor Site Workers	Construction / Utility Workers	Recreationists / Visitors / Tourists	Trespassers (Private Parcels)	Construction Workers
Vegetation	Ingestion	○	○	○	○	○	○
Domestic Animals/Game	Ingestion	○	○	○	○	○	○
Surface Soil	Ingestion	○	○	○	○	○	○
	Dermal Contact	○	○	○	○	○	○
	Inhalation (Dust)	○	○	○	○	○	○
Subsurface Soil	Ingestion	○	○	○	○	○	○
	Dermal Contact	○	○	○	○	○	○
	Inhalation (Dust)	○	○	○	○	○	○
Shallow Groundwater	Ingestion	○	○	○	○	○	○
	Dermal Contact	○	○	○	○	○	○

● Complete Exposure Pathway

◐ Potentially Complete Exposure Pathway

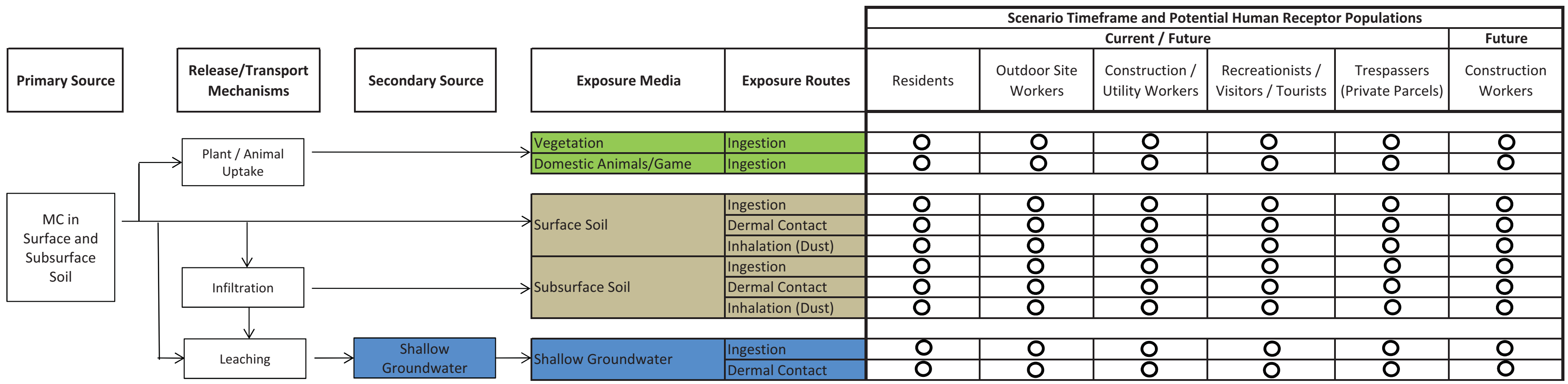
○ Incomplete Exposure Pathway

Notes:
1. Inhalation of volatile chemicals is not a potential exposure route, because the MC of concern for the Site are not volatile.

1. The determination of incomplete exposure pathways is dependent on the data evaluated for this RI and is based on analyte concentrations being less than human health risk-based screening levels. Data gaps and other sources of uncertainty are described in the RI Report text.

EXPOSURE PATHWAY ANALYSIS FOR MC - GRENADE RANGE AREA
Remedial Investigation
Paris, Texas

FIGURE 5-21



Complete Exposure Pathway

Potentially Complete Exposure Pathway

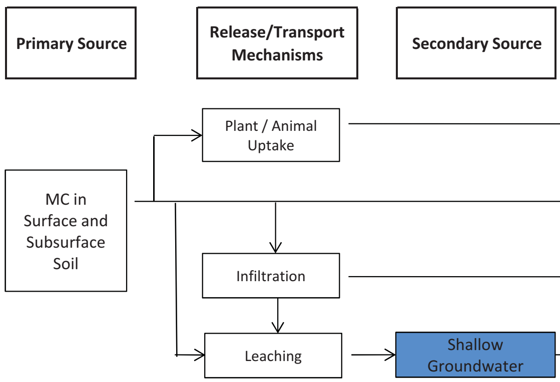
Incomplete Exposure Pathway

Notes:
1. Inhalation of volatile chemicals is not a potential exposure route, because the MC of concern for the Site are not volatile.

1. The determination of incomplete exposure pathways is dependent on the data evaluated for this RI and is based on analyte concentrations being less than human health risk-based screening levels. Data gaps and other sources of uncertainty are described in the RI Report text.

EXPOSURE PATHWAY ANALYSIS FOR MC - CAVE TRAINING AREA
Remedial Investigation
Paris, Texas

FIGURE 5-22



Exposure Media	Exposure Routes	Scenario Timeframe and Potential Human Receptor Populations					
		Current / Future					Future
		Residents	Outdoor Site Workers	Construction / Utility Workers	Recreationists / Visitors / Tourists	Trespassers (Private Parcels)	Construction Workers
Vegetation	Ingestion	○	○	○	○	○	○
Domestic Animals/Game	Ingestion	○	○	○	○	○	○
Surface Soil	Ingestion	○	○	○	○	○	○
	Dermal Contact	○	○	○	○	○	○
	Inhalation (Dust)	○	○	○	○	○	○
Subsurface Soil	Ingestion	○	○	○	○	○	○
	Dermal Contact	○	○	○	○	○	○
	Inhalation (Dust)	○	○	○	○	○	○
Shallow Groundwater	Ingestion	○	○	○	○	○	○
	Dermal Contact	○	○	○	○	○	○

● Complete Exposure Pathway

◉ Potentially Complete Exposure Pathway

○ Incomplete Exposure Pathway

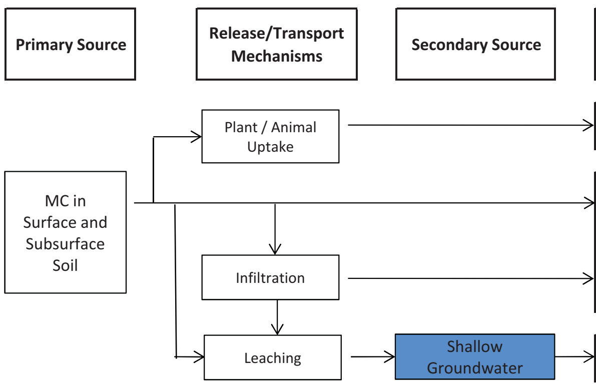
Notes:

1. Inhalation of volatile chemicals is not a potential exposure route, because the MC of concern for the Site are not volatile.

1. The determination of incomplete exposure pathways is dependent on the data evaluated for this RI and is based on analyte concentrations being less than human health risk-based screening levels. Data gaps and other sources of uncertainty are described in the RI Report text.

EXPOSURE PATHWAY ANALYSIS FOR MC - MINE AND BOOBY TRAP TRAINING AREA
Remedial Investigation
Paris, Texas

FIGURE 5-23



		Scenario Timeframe and Potential Human Receptor Populations					
		Current / Future					Future
Exposure Media	Exposure Routes	Residents	Outdoor Site Workers	Construction / Utility Workers	Recreationists / Visitors / Tourists	Trespassers (Private Parcels)	Construction Workers
Vegetation	Ingestion	○	○	○	○	○	○
Domestic Animals/Game	Ingestion	○	○	○	○	○	○
Surface Soil	Ingestion	○	○	○	○	○	○
	Dermal Contact	○	○	○	○	○	○
	Inhalation (Dust)	○	○	○	○	○	○
Subsurface Soil	Ingestion	○	○	○	○	○	○
	Dermal Contact	○	○	○	○	○	○
	Inhalation (Dust)	○	○	○	○	○	○
Shallow Groundwater	Ingestion	○	○	○	○	○	○
	Dermal Contact	○	○	○	○	○	○

● Complete Exposure Pathway
◐ Potentially Complete Exposure Pathway
○ Incomplete Exposure Pathway

Notes:
1. Inhalation of volatile chemicals is not a potential exposure route, because the MC of concern for the Site are not volatile.

1. The determination of incomplete exposure pathways is dependent on the data evaluated for this RI and is based on analyte concentrations being less than human health risk-based screening levels. Data gaps and other sources of uncertainty are described in the RI Report text.

EXPOSURE PATHWAY ANALYSIS FOR MC - BIVOUAC AREA
Remedial Investigation
Paris, Texas

FIGURE 5-24

6 HAZARD ASSSESSMENT AND BASELINE RISK ASSESSMENT

6.1 HAZARD RISK ASSESSMENT FOR MUNITIONS AND EXPLOSIVES OF CONCERN

6.1.1 Munitions Response Site Prioritization Protocol

The MRSPP provides a framework to use with stakeholders to determine the relative risks posed at each MRS within its MRS Inventory. Through application of the MRSPP, each MRS is assigned a relative priority for munitions response actions based on its overall conditions. The MRSPP is divided into three modules to evaluate the unique characteristics of each hazard type:

6.1.1.1 Explosive Hazard Evaluation (EHE):

The EHE Module provides the approach for assigning a relative priority to an MRS where MEC (i.e., UXO, Discarded Military Munitions [DMM], and MC in high enough concentrations to pose an explosive hazard) are known or suspected to be present. The EHE Module assesses the explosive hazard through the evaluation of three factors. Using MRS-specific data, these factors consider the presence of MEC, the likelihood of encountering MEC, and potential receptors.

6.1.1.2 Chemical Warfare Materiel Hazard Evaluation (CHE):

The CHE Module provides a consistent approach for assigning a relative priority to an MRS where Chemical Weapons Materiel (CWM) hazards are known or suspected to be present. The CHE Module is used to evaluate the hazards associated with the physiological effects of CWM. The CHE Module is only applied where CWM are known or suspected to be present at an MRS. If historical or physical evidence indicates that CWM is not present, the appropriate data element tables will be omitted from the MRSPP in accordance with DoD guidance.

6.1.1.3 Health Hazard Evaluation (HHE):

The HHE Module provides a consistent DoD-wide approach for evaluating the relative risk to human health and the environment potentially posed by MC and any incidental nonmunitions-related contaminants. The HHE Module has three-factors; the Contaminant Hazard Factor, Migration Pathway Factor, and Receptor Factor. The Contaminant Hazard Factor assesses the potential hazards to receptors from MC and any incidental nonmunitions-related contaminants. The Migration Pathway Factor evaluates the potential for contaminant migration from the MRS to other areas, while the Receptor Factor assesses the presence of receptors to potentially become exposed to or come in contact with MRS-related contamination from MC and any incidental nonmunitions-related contaminants.

6.1.2 MRSPP Scoring

Each of the modules is assigned a rating from G (lowest) to A (highest). Besides the ratings, there are three other possible outcomes of scoring for each module; evaluation pending (insufficient data are available to conduct the scoring), no longer required (a response has already been conducted and completed), or no known or suspected hazard. Based on the scores of the three modules, each MRS is assigned one of eight priorities. Priority 1 indicates the highest MRS priority and Priority 8 indicates the lowest MRS priority. Table 6-1 provides a summary of the MRSPP results for each MRS addressed during the RI. The MRSPP worksheets, with details on how each MRS was scored, are included in Appendix F.

Table 6-1: Summary of MRSPP Results

MRS	EHE Rating	CHE Rating	HHE Rating	MRS Priority or Alternative Rating
Western Range Area A	D	No Known or Suspected	Evaluation Pending	5
Western Range Area B	D		No Known or Suspected	5
Western Range Area C	D		No Known or Suspected	5
Western Range Area D	C		No Known or Suspected	4
Western Range Area E	C		Evaluation Pending	4
Eastern Range Area A	B		No Known or Suspected	3
Eastern Range Area B	C		No Known or Suspected	4
Eastern Range Area C	C		No Known or Suspected	4
Grenade Range Area	C		No Known or Suspected	4
Cave Training Area	F		Evaluation Pending	7
Mine and Booby Trap Training Area	E		No Known or Suspected	6
Bivouac Area	B		Evaluation Pending	3

6.1.3 Baseline Munitions and Explosives of Concern Hazard Assessment

6.1.3.1. The MEC HA is a tool used to assess the risk from MEC at an MRS and is completed in accordance with the *Interim Munitions and Explosives of Concern Hazard Assessment (MEC HA) Methodology* (USEPA, 2008a). The purpose of the MEC HA is twofold:

1) Support the hazard management decision-making process by analyzing site-specific information to:
    a) Assess existing explosives hazards
    b) Evaluate hazard reductions associated with removal and remedial alternatives
    c) Evaluate hazard reductions associated with land use activity decisions
2) Support hazard communication:
    a) Between members of the project team and among other stakeholders

6.1.3.2. By organizing MRS information in a consistent manner the MEC HA helps understand the hazards associated with a MRS if no action is taken, and to evaluate the hazard reductions associated with removal or remedial alternatives. As with any CERCLA-based cleanup process, several different alternatives may be protective of human health and the environment. The information collected for the MEC HA as well as the results can provide input into the CERCLA remedy evaluation and selection process.

6.1.3.3. The MEC HA addresses human health and safety concerns associated with potential exposure to MEC at each MRS. It does not directly address environmental or ecological concerns that might be associated with MEC, including the risks associated with exposure to MC as environmental contaminants. It does not address operational ranges. It does not address locations where military munitions are known or suspected to be present underwater.

6.1.3.4. The MEC HA assesses the acute hazard presented by the explosive component(s) of military munitions. Although military munitions include CWM, and thus CWM is MEC, the chemical agent component of the CWM presents a greater hazard to human health than the explosive components of CWM. Additionally, the toxic chemical hazard presented by the CWM can be calculated by current commonly acceptable methods. This does not dismiss the potential explosive hazard associated with many CWM but rather reflects the recognition that the greatest risk to human health from CWM is the chemical agent, not the explosive. There is no historical or physical evidence of CWM use at the Former Camp Maxey and therefore no expected CWM hazard. The MEC HAs are included in Appendix E.

6.1.4 Hazard Assessment Scoring

6.1.4.1. An input factor category is applied for each input factor based on site-specific conditions and the previously determined numerical value for the selected category is prescribed for each associated input factor. The sum of the input factors assessed by the MEC HA produces a score that is associated with one of four Hazard Levels. These Hazard Levels reflect the interaction between the current or future human activities in an MRS, and the types, amounts, and conditions of MEC items within the MRS. The maximum MEC HA score is 1,000 and the minimum score is 125.

6.1.4.2. The Hazard Levels and associated scores represent groupings of sites with common or similar attributes with respect to conditions that constitute the explosive hazards. As noted in the MEC HA guidance, the scores have meaning only with respect to one another. Table 6-4 contains the Hazard Level Ranges.

Table 6-2: Hazard Level Scoring Ranges

Hazard Level	Maximum MEC HA Score	Minimum MEC HA Score
1	1,000	840
2	835	725
3	720	530
4	525	125

6.1.4.3. A Hazard Level of 1 identifies MRSs with the *highest* potential explosive hazard conditions. Typical characteristics of Hazard Level 1 MRS conditions include the following:

- High-explosive-filled UXO, usually "Sensitive UXO" on the surface
- A former target area or Open Burn/Open Detonation (OB/OD) area
- An MRS with full or moderate accessibility
- Has the presence of additional human receptors inside the MRS or Explosive Safety Quantity Distance
- May include subsurface MEC with intrusive

6.1.4.4. A Hazard Level of 2 identifies MRSs with high potential explosive hazard conditions. Typical characteristics of a Hazard Level 2 MRS include the following:

- Former target area, OB/OD area, function test range, or maneuver area
- UXO, or Fuzed Sensitive DMM on the surface, or intrusive activities that overlap with minimum depths of UXO or Fuzed Sensitive DMM located only subsurface
- Has full or moderate accessibility to people who will engage in intrusive activities

6.1.4.5. A Hazard level of 3 identifies MRSs with moderate potential explosive hazard conditions. Typical characteristics of a Hazard Level 3 MRS include the following:

- DMM on the surface, or intrusive activities that overlap with minimum depths of DMM located only subsurface
- Former target area, OB/OD area, function test range, or maneuver area that has undergone a surface cleanup
- An MRS with moderate or limited accessibility, and a low number of contact hours

6.1.4.6. A Hazard Level of 4 identifies MRS with low potential explosive hazard conditions. The presence of MEC at an MRS means that an explosive hazard may exist. Therefore, MEC may still pose a hazard at a Hazard Level 4 MRS. Typical characteristics of an MRS in Hazard Level 4 include the following:

- A MEC cleanup was performed or MEC is only located subsurface, below the depth of receptor intrusive activities
- Energetic Material Type is propellant, spotting charge, or incendiary
- Accessibility is Limited or Very Limited, and contact hours are few or very few. This may be the result of LUCs.

6.1.5 Baseline Scoring Results

The baseline scoring results for the MRSs with historical or RI MEC finds are included in Table 6-3. Scoring results are based on results from previous investigations, to include the RI, and current site conditions only. MEC HA scores were not developed for MRSs where no MEC has ever been found, either historically or during the RI, because the most significant driver of the MEC HA score requires that MEC finds be included. MEC HA scores were not developed for MRSs excluded from the FS due to the need for additional characterization. MEC HA scores for the evaluated remedial alternatives are addressed in Section 9. The MEC HA worksheets, with details on how each MRS was scored, are included in Appendix E.

Table 6-3: Baseline Hazard Level Scores

MRS	MEC HA Score	Hazard Level
Western Range Area B	MEC HA not scored because no MEC encountered.	
Western Range Area C	MEC HA not scored because no MEC encountered.	
Western Range Area D	920	1
Eastern Range Area A	950	1
Eastern Range Area B	735	2
Eastern Range Area C	760	2
Grenade Range Area	920	1
Mine and Booby Trap Area	MEC HA not scored because no MEC encountered.	

6.1.6 Munitions and Explosives of Concern Qualitative Risk

To further evaluate risk at the MRSs and to address limitations encountered during the MEC HA development (i.e., MEC required, limited parameters for selection, etc.), a qualitative risk evaluation was completed for each MRS investigated during the RI and addressed in the FS. This evaluation is qualitative in nature and captures site attributes such as MEC and MD density and current and future land uses in a more flexible and subjective manner not allowed in the MEC HA analysis.

6.1.6.1 Western Range Area B

This MRS is located in the West Range Area and included portions of several range fans. It is a noncontiguous area located east of Western Range Area A and along the north and east side of Pat Mayse Lake. It is located primarily within a WMA that is Government owned but accessed by the public for surface recreational activities, such as hiking and hunting. Small portions of the MRS are privately owned undeveloped property where ROEs were granted for RI field work. No MEC was identified during the RI or during previous investigations and the MRS is classified as having relatively low MD density. RI data supports the historical data. This may indicate that it was on the edge of the main impact/target area. Based on the light recreational use in the area (e.g., hunting and hiking), and because no MEC was found and the MD density from the RI is low, there is a relatively low explosive hazard risk associated with the MRS.

6.1.6.2 Western Range Area C

This MRS is located in the North-Central and South-Central sections of the West Range Area. It is located within a WMA that is Government owned but accessed by the public for surface recreational activities, such as hiking and hunting. No MEC was located in this MRS during the RI or during previous investigations; however there are areas with medium and high MD densities that is consistent with potential target areas within impact areas. Based on the light recreational use in the area (e.g., hunting and hiking), and because no MEC was found and the MD density from the RI is medium to high, there is a low to moderate explosive hazard risk associated with the MRS.

6.1.6.3 Western Range Area D

This MRS is located in what is believed to be the central impact area for the west ranges. It is located within a WMA that is Government owned but accessed by the public for surface recreational activities, such as hiking and hunting. RI results include UXO located on or just below the ground surface (within 12 inches) and several areas with high or medium MD density. Based on the light recreational use in the area (e.g., hunting and hiking), and because UXO was found on the ground surface and in the subsurface and the MD density from the RI is medium to high, there is a moderate to high explosive hazard risk associated with the MRS.

6.1.6.4 Eastern Range Area A

This MRS is located along the North and East shore of the Pat Mayse Lake within the East Range Area. The area is primarily within a state park, used for recreation, which may include activities such as camping, hiking and accessing the lake. It includes the dam area and former ranges that were investigated and partially cleared in a previous removal action. The previous removal action included the use of geophysical transects to locate potential former target areas and then selected grids were cleared in order to reduce the potential for exposure to MEC. No MEC was encountered in this MRS during the RI and only low concentrations of MD were identified. While removal actions have been completed in the MRS and no MEC was found during the RI, because of the intrusive subsurface activities associated with camping and the high number of receptors utilizing the area, there is a moderate to high explosive hazard associated with the MRS.

6.1.6.5 Eastern Range Area B

This MRS is located on the peninsula that extends into the south side of Pat Mayse Lake in the center of the East Range Area. The property is used for camping and other recreational activities. Recreational activities in this MRS are primarily on the surface but there may be some shallow subsurface exposure associated with some camping activities. Although only one UXO was located within this MRS during the RI, previous investigation/removal projects have identified some MEC in the MRS. While removal actions have been completed in the MRS, because a UXO item was found during the RI and based on the intrusive subsurface activities associated with camping and the high number of receptors utilizing the area, there is a moderate to high explosive hazard associated with the MRS.

6.1.6.6 Eastern Range Area C

This MRS is located on the southern shore of the lake within the East Range Area. It is located along a narrow band between the National Guard facility and Pat Mayse Lake. Although not designated for public recreational use, the area can be accessed by lake or over land. Potential exposure could result from surface related recreational activities, such as hiking or fishing along the lakeshore. No MEC was located during the RI and MD density was generally low throughout the MRS. Based on the light recreational use in the area (e.g., hiking and fishing), and because no MEC was found and the MD density from the RI is low, there is a relatively low explosive hazard risk associated with the MRS.

6.1.6.7 Grenade Range Area

This MRS includes three areas identified in historical documents as grenade training areas, located on the south side of the lake west of the Eastern Range Area. The MRS is located on public land that may be accessed for recreational activities associated with Pat Mayse Lake, such as hiking and fishing. One UXO was found on the ground surface during the RI along with MD, which could be an indication of potential MEC in the area. Based on the light recreational use in the area (e.g., hiking) and the difficulty associated with accessing the area, and because MEC was found during the RI, there is a moderate explosive hazard risk associated with the MRS.

6.1.6.8 Mine and Booby Trap Training Area

This MRS is located east of the West Range Area and is on privately owned residential parcels. Historical records indicated that the area was used to train with practice mines. Collection of data during the RI was limited by a lack of access to several private parcels in the area; however during a reconnaissance of the area a property owner provided information and evidence that confirmed mine training in the area. Practice mines used during the time that the Former Camp Maxey was in operation, contained a small "puff charge" that was not intended to cause harm. Based on the residential use of the area and the type of munitions historically noted and identified during the RI (practice only), there is a relatively low explosive hazard risk associated with the MRS.

6.2 Baseline Risk Assessment for Munitions Constituents

This section presents an evaluation of potential human health and ecological risks associated with exposure to MC in soil at the Former Camp Maxey. The risk assessment is based on the analytical results of 47 surface soil samples collected in September and October 2013 and 120 subsurface soil samples collected in December 2013. The baseline risk assessment contains a HHRA and SLERA. The risk assessments were conducted in accordance with the USEPA's *Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual (Part A)* (USEPA, 1989) and *Ecological Risk Assessment Guidance for Superfund* (USEPA, 1997), the USACE's *Risk Assessment Handbook, Volume I: Human Health Evaluation* (USACE, 1999) and *Volume II: Environmental Evaluation* (USACE, 2010), and the Texas Commission on Environmental Quality (TCEQ; formerly known as Texas Natural Resource Conservation Commission [TNRCC]) *Guidance for Conducting Ecological Risk Assessments at Remediation Sites in Texas* (TNRCC, 2001a). The objectives of the risk assessment are to:

- Assess potential human health risks, currently and in the future, in the absence of any major action to control or mitigate soil contamination (if present).
- Evaluate potential adverse effects to ecological receptors, currently and in the future, in the absence of any major action to control or mitigate soil contamination.
- Assist in determining the need for and extent of soil remediation.
- Provide a basis for comparing various remedial alternatives and determining which of them will meet the goals of protection of human health and the environment, as defined in the NCP (NCP; 40 CFR Part 300.5).

6.2.1 Data Evaluation

This section presents the available MC data from soil samples collected at the Former Camp Maxey. Fieldwork and environmental sampling for the RI were conducted in accordance with the Performance Work Statement for the Former Camp Maxey, with field investigation procedures further developed in the RI/FS Work Plan (EOTI, 2013) and minor deviations noted in Section 3.5.2, above. Laboratory analytical methods and data validation procedures were selected to meet the DQOs identified in the QAPP.

6.2.1.1 Surface Soil

6.2.1.1.1. Forty-seven surface soil (*i.e.,* 0-0.5 feet bgs) samples (plus QC samples in the form of triplicates) were collected for MC analysis during the RI. Forty-four of the 47 surface soil samples were collected at locations identified as high or medium anomaly (*i.e.,* potential MD) density during the RI MEC investigation. Three of the 47 surface soil samples were collected at “historical” locations where prior MEC investigations and removals occurred but no MC sampling was performed. Map 3-4 depicts the surface soil sample locations. As shown, the majority or 38 soil samples were collected from the Western Range Area, and five soil samples were collected from the Grenade Range Area. Only one soil sample was noted as being collected from the Eastern Range Area; however, the three historical samples were also located in the Eastern Range Area. Eight background surface soil samples were also collected during the RI, from within the MRS boundary but at locations presumed to be un-impacted by military activities based on a review of historic investigations/removals and the RI MEC investigation.

6.2.1.1.2. Surface soil samples were collected according to IS methodology (ITRC 2012). Field sampling procedures are described in Section 3.3.1, and the MC analyses are described in Section 3.3.2. Soil samples were analyzed for the MC of concern listed in Table 5-1 of the Sampling and Analysis Plan, which was presented as Appendix E to the RI/FS Work Plan (EOTI, 2013). These MC include explosives and the following metals: aluminum, antimony, barium, copper, magnesium, lead, nickel, and zinc. The MC of concern list was developed based on the known chemical components of the types of military munitions used during training activities at the Former Camp Maxey.

6.2.1.1.3. Data were evaluated consistent with USEPA (1989, 1992b, 2006) guidance for developing exposure concentrations and with available guidance on IS methodology (ITRC 2012), as follows:

- If a constituent was not detected in any of the samples and the reporting limit was below risk-based screening levels, that constituent was not evaluated further.
- For six SUs with surface soil samples collected in triplicate, the three sample results were averaged for a single mean concentration for that SU. If all triplicate sample results were non-detect (ND), the sample was considered ND. If triplicate results were a mixture of detects and NDs, the detected values were averaged with the ND using half the sample detection limit as a proxy concentration.

6.2.1.1.4. Statistical summaries, including frequency of detection, range of detected concentrations, and arithmetic mean concentration, were prepared for the analytes in surface soil. Data summary tables are presented in the HHRA Section 6.2.2 (Table 6-6) and SLERA Section 6.2.3 (Table 6-8), where constituent concentrations are evaluated in the context of the potential for risk.

6.2.1.2 Subsurface Soil

6.2.1.2.1. Based on the phased approach established for MC sampling, subsurface soil (*i.e.,* 0.5-1 foot bgs) samples were collected from the SUs at which surface soil sample results exceeded PALs. Four discrete subsurface soil samples were collected from each of 30 SUs; therefore, a total of 120 subsurface soil samples (plus QC samples in the form of duplicates) were collected. While both lead and magnesium were detected in surface soil at concentrations above PALs, subsurface soil samples were only analyzed for lead, as no human health or ecological risk-based screening values are available for magnesium. Ten discrete subsurface soil samples were also collected from the same eight SUs used for surface soil background sampling. Background subsurface soil samples were also analyzed for pH, percent moisture, and percent solids.

6.2.1.2.2. Data were evaluated as follows:

- For 12 SUs with subsurface soil samples collected in duplicate, the two sample results were averaged to yield a single mean concentration.
- For each SU, the four sample results were averaged to yield a single mean concentration.

6.2.1.2.3. A statistical summary, including frequency of detection, range of detected concentrations, and arithmetic mean concentration, was prepared for lead in subsurface soil. Lead was detected in all 120 subsurface soil samples. Data summary tables are presented in the HHRA Section 6.2.2 (Table 6-7)[1] and SLERA Section 6.2.3 (Table 6-9), where lead in subsurface soil is evaluated in the context of the potential for risk.

6.2.2 Human Health Risk Assessment

The HHRA addresses the potential for adverse human health effects associated with exposure to MC in soil at the Former Camp Maxey. The HHRA methodology follows the USEPA CERCLA RI/FS process. The goal of the Superfund HHRA process is to provide a framework for developing the risk information necessary to assist in determination of possible remedial actions at a site. Risk assessment is a tool used to characterize and assess the toxicity of contaminants, evaluate the potential pathways and routes through which an individual may be exposed to contaminated environmental media, and characterize the cancer risks and non-cancer hazards at a site (USEPA, 1989). There are four components to the HHRA process: data evaluation, exposure assessment, toxicity assessment, and risk characterization (USEPA, 1989). The data evaluation entails the initial evaluation presented in Section 6.2.1, above, and focuses in this HHRA (Section 6.2.2.1) on the identification of COCs. In the exposure assessment, assumptions about the potential for human exposure to COCs originating at a site are established. Representative exposure point concentrations for each COC are derived from the relevant data sets and used to model human exposure, in the form of constituent intakes, dermally absorbed doses, and exposure concentrations. The likelihood and magnitude of adverse health effects are expressed as

[1] Although separate data summary tables are presented for surface and subsurface soil samples collected during this RI, both data sets are considered representative of surface soil for the HHRA. Surface soils are defined by TCEQ to extend from ground surface to 15 feet bgs at residential properties and from ground surface to 5 feet bgs at commercial/industrial properties (TCEQ, 2009).

incremental lifetime cancer risks and non-cancer hazard quotients, which are estimated in the risk characterization by combining the estimates of exposure with constituent-specific toxicity information. Sources of uncertainty associated with the HHRA process and the extent to which human health risks may be over- or under-estimated are also discussed.

6.2.2.1 Identification of COCs

6.2.2.1.1. The decision process for the identification of COCs in soil is dictated by relevant USEPA (1989), USACE (1999), and TCEQ guidance. A risk-based screen of detected MC concentrations was implemented, using the TRRP Tier 1 Residential Soil PCLs for a 30 acre source area[2] as screening values. The Tier 1 PCLs are constituent- and medium-specific concentrations derived to be protective of adverse health effects. The Tier 1 PCLs for total soil combined ($^{Tot}Soil_{Comb}$) pathways were used and are protective of incidental ingestion of soil, dermal contact with soil, inhalation of volatiles and particulates, and ingestion of above-ground and below-ground vegetables grown in soil. Depending on the toxic effect, PCLs are based on either a cancer risk of one-in-one-hundred-thousand (*i.e.,* $1x10^{-5}$ or 1E-05) or a non-cancer HQ of 1. PCLs based on non-cancer health effects were reduced by a factor of 10 (to represent a target HQ of 0.1) to address potential non-cancer health effects from exposure to multiple constituents. This approach is consistent with standard risk assessment practice for COC selection.

6.2.2.1.2. Constituents with maximum detected concentrations greater than their respective Tier 1 PCLs were selected as COCs. However, magnesium was categorically eliminated as a COC, because it is an essential nutrient and soil concentrations of magnesium are not expected to be a health concern (TNRCC, 2001b). In addition, if the maximum concentration of a metal was less than background soil concentrations, the metal was not selected as a COC regardless of comparison to the PCL. For the HHRA, the comparison of metals data to background concentrations was performed with consideration of soil type. All soil samples, including site-specific background samples, were categorized into one of two soil types (*i.e.,* A = coarse alluvial deposits; sandy or B = fine alluvial deposits; clayey) during the RI field effort, based on review of sample locations relative to a Department of Agriculture soil map and visual observation of soils collected for sampling, in order to allow for screening of detected metals in soil samples against concentrations in background soils representative of the same soil type. The background values used to identify constituents as COCs were the greater of the average site-specific background concentrations for soil type A or B (as applicable) and Texas-specific background concentrations (30 TAC §350.51[m]). This approach is consistent with the TRRP Rule Adoption Preamble (TNRCC, 1999) and TRRP general requirements (30 TAC §350.71(k)(2)(D)).

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[2] Although the actual sampled area of each SU is only 2,500 square feet or 0.06 acres, PCLs for a 30 acre source area (rather than 0.5 acre source area) were selected because they are more conservative than the 0.5 acre source area PCLs. In addition, the 30 acre source area PCLs are likely more representative of the actual geographic area over which human (and wildlife) exposures are averaged within the Former Camp Maxey. Rather than evaluating the potential for exposure and associated health risk on a SU-by-SU basis, exposure units would likely be established and data from multiple SUs would be combined to calculate a single exposure point concentration for each COC in each exposure unit. In this case, the area of each exposure unit would likely be much larger than 0.5 acre.

6.2.2.1.3. Table 6-6 presents the MC surface soil data summary, and Table 6-7 presents the MC subsurface soil data summary. While separate surface and subsurface soil data summary tables are presented, both data sets are considered representative of surface soil as a potential human exposure medium. Surface soils are defined by TCEQ to extend from ground surface to 15 feet bgs at residential properties and from the ground surface to 5 feet bgs at commercial/industrial properties (TCEQ, 2006). Tables 6-6 and 6-7 also present the constituent-specific risk-based screening value, background value for each metal in each soil type, Texas-specific background soil concentrations, and whether the analyte was identified as a COC. Based on the decision process described above, no analytes were identified as COCs in surface soil or subsurface soil.

6.2.2.2 HHRA Findings

In this HHRA, no COCs were identified in soil at the Former Camp Maxey. Therefore, human exposure was not modeled, and the HHRA process is complete. Conclusions and recommendations based on the results of the HHRA are presented in Section 6.2.5.

6.2.3 Screening Level Ecological Risk Assessment

The SLERA is a tool to systematically evaluate the potential for site conditions to pose an unacceptable risk to ecological receptors in accordance with the TCEQ risk assessment guidelines (TNRCC, 2001a). As stated in the RI/FS Work Plan, an area-specific SLERA was prepared for the 16,235-acre Former Camp Maxey MRS. This section presents the results of the SLERA. The objectives of the SLERA are to evaluate the potential for adverse health effects in ecological receptors and present the results in a manner that facilitates risk management decision-making. The need for further ecological evaluation will be determined by USACE and the regulatory agencies based on the SLERA findings and recommendations. Sources of uncertainty in the baseline risk assessment and the potential effects of these uncertainties on the Tier 2 SLERA conclusions are discussed in Section 6.2.4, Consideration of Uncertainty. In accordance with TCEQ ERA Guidance (2001a), this section provides information and support for Required Element 8, as defined in the TRRP (§350.77(c)). Conclusions and recommendations based on the screening analysis and uncertainty analysis for terrestrial vegetation and soil-dwelling invertebrates are presented in Section 6.2.5 and provide support for Required Element 10, as defined in the TRRP (§350.77(c)). The SLERA is organized as follows:

- Section 6.2.3.1 – Environmental Setting describes the natural setting of the Former Camp Maxey, including the habitat and wildlife that occur or may occur on site. Details on the environmental setting at the Former Camp Maxey are provided in Section 2.1.2.5.
- Section 6.2.3.2 – Problem Formulation discusses the first phase of a Tier 2 SLERA. In accordance with TCEQ Ecological Risk Assessment (ERA) Guidance (2001a), this section provides information and support for Required Element 1, as defined in the TRRP (§350.77(c)). Environmental Setting

The Former Camp Maxey lies within the gently rolling landscape of the Northern Post Oak Savanna ecoregion. Due to the undisturbed nature of most of the area, the site provides a suitable habitat for various forms of wildlife, including mammals, birds, reptiles, amphibians, and aquatic life. Details concerning the environmental setting to include specifics related to vegetation, wildlife, and protected species (Table 2-1) are included in Section 2.1.2.5.

6.2.3.1 Problem Formulation

The first step of a Tier 2 SLERA addresses elements of problem formulation (TNRCC, 2001a; USEPA, 1992a, 1997 and 1998). The problem formulation phase of the Tier 2 SLERA for this site establishes the breadth and focus of the assessment and includes data evaluation, and the required Element 1 of the TCEQ SLERA process. Data evaluation is described in Section 6.2.1. Constituents were screened against ecological benchmarks and background concentrations as part of Tier 2 SLERA Element 1 (Section 6.2.3.2.2). The remaining elements, with the exception of Elements 8 and 10 (Uncertainty Analysis and Recommendations, respectively), were not necessary for this SLERA because, as discussed in Section 6.2.3.2.2, no COCs were identified for the site. Under the Tier 2 SLERA Element 1, a screening analysis was conducted to select COCs to evaluate potential effects and to eliminate constituents that do not pose unacceptable ecological risks. The screening analysis for the site was performed using a two-step process: 1) comparison to background and 2) ecological benchmark screening. The first step was to compare analytical results for constituents detected in soil to background concentrations. Maximum concentrations of metals in soil were compared to Texas-specific background concentrations presented in 30 TAC 350.51(m), or from site-specific background levels presented in Table 3-4, whichever are higher (TNRCC, 1999; 30 TAC§350.71(k)(2)(D)). The second step was to compare concentrations to established ecological benchmarks for soil. In accordance with TCEQ guidance (TNRCC 2001a), initial screening was conducted using the maximum detected concentration in soil. The development of background concentrations and constituent screening against ecological benchmark values are described in the sections that follow.

6.2.3.1.1 Background Screening

6.2.3.2.1.1. Site-specific background sampling is discussed in Section 3.3.1. Concentrations of the metal constituents, which include four bioaccumulative metals (copper, lead, nickel and zinc [TCEQ, 2006]) were compared to site-specific and Texas-specific background concentrations.

6.2.3.2.1.2. In the Grenade Range Area, five incremental surface samples and 20 discrete subsurface samples were collected and all metal concentrations were reported below Texas-specific background for all samples with one exception. One subsurface sample reported a lead concentration above the Texas-specific background concentration of 15 mg/kg (21 mg/kg). In the Eastern Range Area, one incremental surface sample, three incremental historical surface samples, and four discrete historical subsurface samples were collected and all concentrations were reported below background concentrations. The majority of the samples collected for the site were collected from the Western Range Area. Thirty-eight incremental surface samples and 96 subsurface samples were collected from this area. Of the thirty-eight, only five surface samples reported lead concentrations above the Texas-specific background concentration of 15 mg/kg (13 percent) and range from 17 to 42 mg/kg. Two of the thirty-eight samples reported nickel concentrations above the Texas-specific background concentration of 10 mg/kg and range from 12 to 13 mg/kg. Finally, two of the thirty-eight samples reported zinc concentrations of 34 mg/kg, slightly above the Texas-specific background concentration of 30 mg/kg. Of the ninety-six discrete subsurface samples, 11 reported lead concentrations above the Texas-specific background concentration of 15 mg/kg (11 percent) and range from 16 to 86 mg/kg.

6.2.3.2.1.3. Since the samples with reported concentrations above background were located sporadically across the Western Range Area, arithmetic means and 95 percent upper confidence limits on the mean (UCLs) were calculated and compared to site-specific and Texas-specific background concentrations. UCLs were calculated using USEPA's ProUCL 5.0.00 (USEPA, 2013a; 2013b). The ProUCL output is presented in Appendix G. The UCL and mean concentrations were used because these concentrations are considered to be more representative (than a maximum concentration) of what ecological receptors would be exposed to during foraging activities throughout their life cycle. The following tables present the arithmetic mean, UCL and background concentrations for copper, lead, nickel and zinc in surface soil and the arithmetic mean, UCL and background concentration for lead in subsurface soil.

Table 6-4: Surface Soil Background Levels

Metal	Western Range Area Surface Soil Arithmetic Mean (mg/kg)	Western Range Area Surface Soil UCL Concentration (mg/kg)	Texas-Specific Background Concentration (mg/kg)	Soil Type A Background Surface Soil Concentration Range (mg/kg) [a]	Soil Type B Background Surface Soil Concentration Range (mg/kg) [a]
Copper	3.5	5.7	15	1.8 - 2.0 (1.9)	0.9 - 1.8 (1.4)
Lead	11.2	12.8	15	6 – 11 (7.6)	4.5 – 13 (9.0)
Nickel	4.5	6.7	10	2 – 4 (2.6)	1.1 - 2.7 (2.0)
Zinc	12.2	17.6	30	7 – 10 (7.7)	4.4 - 8.1 (6.3)

Note: a - Value in parenthesis is average

Table 6-5: Subsurface Soil Background Levels

Metal	Western Range Area Subsurface Soil Arithmetic Mean (mg/kg)	Western Range Area Subsurface Soil UCL Concentration (mg/kg)	Texas-Specific Background Concentration (mg/kg)	Soil Type A Background Subsurface Soil Concentration Range (mg/kg) [a]	Soil Type B Background Subsurface Soil Concentration Range (mg/kg) [a]
Lead	10.31	11.08	15	3.6 - 8.7 (5.6)	5.9 - 17 (11.3)

Note: a - Value in parenthesis is average

6.2.3.2.1.4. As seen in these tables, the mean and UCL concentrations for bioaccumulative metals are below their respective Texas-specific background concentrations and are similar to the Type A and B site background concentrations. Based on these considerations, site concentrations in soil are not expected to represent a concern to wildlife. Additionally, all metals concentrations are well below established and conservative ecological screening benchmarks, as discussed in the following section.

6.2.3.1.2 Screening against Ecological Benchmarks

6.2.3.2.2.1. The next step of a Tier 2 SLERA is the comparison of constituent concentrations to the ecological screening benchmarks (ESBs) for soil presented in Table 3-4 of the TCEQ ERA guidance (TCEQ, 2006). The details of the TCEQ literature sources and mathematical derivation of the ESBs can be found in Appendix A of the ERA guidance (TCEQ, 2006). There are no existing ESBs, criteria, or guidelines for explosive or energetic compounds that have been developed by TCEQ or the USEPA. Therefore, a search for available screening values was expanded to include other potential sources. The Los Alamos National Laboratory (LANL) ECORISK Database was identified as a source of screening levels for explosives. LANL has derived these screening levels based on evaluation of peer-reviewed toxicity study literature using LANL's primary toxicity study evaluation process as documented in Toxicity Reference Value Development Methods for the Los Alamos National Laboratory (LANL, 2010) and by compiling others from secondary sources such as the USEPA, Oak Ridge National Laboratory, the International Atomic Energy Agency, and other acceptable secondary source compendiums of toxicity data or screening levels. The LANL ECORISK database (LANL, 2013) was searched and the minimum no observed adverse effect level available for an explosive in a soil medium was used as the ESB in this SLERA (Table 6-9, 6-10).The ESBs are meant to conservatively represent the upper limit of constituent concentrations that will not cause adverse effects to exposed biota inhabiting the environmental medium.

6.2.3.2.2.2. The measurement of total aluminum in soils is not considered suitable or reliable for the prediction of potential toxicity of aluminum to plants because toxicity is associated with soluble aluminum in soil water. Therefore, the USEPA (USEPA 2003 EcoSSL document) recommends an alternative procedure for screening aluminum in soils that is based on the measured soil pH. The USEPA recommends that aluminum be considered for evaluation as a COPC where the soil pH is less than 5.5. However, studies have shown that when soil pH is 5.0 or higher, the predominant ionic form of aluminum that causes phytotoxicity (i.e., trivalent aluminum) does not occur in soil water and therefore is not expected to be toxic to plants (Delhaize and Ryan 1995; Panda et al. 2009; Zheng 2010; Liang et al. 2013). Mulder et al. (1989) evaluated the relationship between soil solution pH and soluble aluminum concentrations and demonstrated that above a pH of 5.0 soluble aluminum is not measured. This data supports the conclusion that at a soil pH of 5.0 and higher, soluble aluminum does not occur and plant toxicity associated with aluminum in soils is not expected. The site-specific soil pH for the Camp Maxey samples averages 5.2. Based on this information, aluminum is not expected to represent an ecological risk to plants at Camp Maxey.

6.2.3.2.2.3. In accordance with ERA guidance (USEPA 1997; TCEQ 2006) constituents in soil that have concentrations below the ESBs were considered to be of no further ecological concern and were eliminated from additional evaluation in the ERA process. Measured constituents in soil, bioaccumulative or not, that have concentrations below background concentrations were also eliminated.

6.2.3.2.2.4. Constituents that were screened out in this step for surface and subsurface soil were not retained for further evaluation. As discussed in Section 6.2.3.2.1 and as seen in Tables 6-8 and 6-9, the results of the screening demonstrate that no COCs were identified for the Former Camp Maxey.

6.2.4 Consideration of Uncertainty

Risk assessment inherently involves the use of assumptions, judgments and incomplete data to varying degrees that may contribute to decision uncertainty in either direction. Considering the uncertainties associated with components of the risk assessment process provides a meaningful interpretation and thorough understanding of the potential human health risks and adverse effects to ecological receptors. This section identifies some of the major sources of uncertainty in this baseline risk assessment and discusses whether the potential for risk is likely to be under- or over-stated as a result.

6.2.4.1 Sampling and Analysis, and Data Evaluation

6.2.4.1.1. A basic assumption underlying this risk assessment is that the soil data collected during the RI adequately characterize environmental conditions at the Former Camp Maxey. However, there are always some uncertainties associated with environmental sampling and analysis. Uncertainty associated with environmental sampling is generally related to limitations in terms of the number and distribution of samples, while uncertainty associated with the analysis of samples is generally related to systematic or random errors (*i.e.,* false positive or negative results). Efforts to minimize uncertainty were made by collecting and analyzing the RI samples in accordance with the QAPP and by independently validating the analytical data. The effects any unidentified errors in the MC analyses have on the estimated exposure and risk are unknown.

6.2.4.1.2. The risk assessment is based on the analytical results of only 47 surface soil samples and 120 subsurface samples collected across the entire 16,235-acre MRS. As a result, site-related MC concentrations across the Former Camp Maxey may be under-estimated. However, MC sampling locations (*i.e.,* SU) were biased towards medium and high anomaly density grids observed during the RI MEC investigation. As a result of this bias, MC concentrations detected in soil likely over-estimate the potential MC presence across the investigated areas.

6.2.4.1.3. Surface soil samples were collected using the IS methodology approach (ITRC, 2012), rather than a discrete soil sampling approach, in an effort to characterize a greater areal extent and thereby obtain representative estimates of MC concentrations for each SU. Frequently, discrete soil samples are collected in a biased manner (*i.e.,* targeting “hot spots”) that likely does not represent the concentrations to which humans and wildlife may be exposed. On the other hand, IS methodology typically captures the broad effects (*i.e.,* proportional representation and thus higher average concentrations) of hot spots due to the improved spatial coverage within the SU, but it does not provide information on the spatial location of smaller volumes of soil containing hot spots of contaminants within the SU, nor does it indicate the magnitude of these areas of elevated concentration if they exist (ITRC, 2012). While the potential presence of hot spots may be over-looked, the selected approach to surface soil sampling provides a better representation of average exposure conditions across the Former Camp Maxey.

6.2.4.2 Risk-Based Screening Levels and Background Concentrations

6.2.4.2.1. Statements about the potential for risk associated with exposure to MC in soil were based on a comparison of detected constituent concentrations to TCEQ PCLs and ESBs, and for metals, to background concentrations in soil. Other basic assumptions therefore underlying this risk assessment are that the TCEQ PCLs and ESBs are adequately protective of adverse effects in potential human and ecological receptors, background concentrations reflect background conditions at the Former Camp Maxey, and background conditions do not pose human health or ecological risks (a reasonable assumption).

6.2.4.2.2. Generally, uncertainties associated with risk-based screening levels are related to the exposure assumptions and toxicity values used to derive them. The TCEQ PCLs and ESBs used in this risk assessment are based on conservative exposure assumptions and toxicity criteria. As a result, the potential for risk is not likely to be under-stated.

6.2.5 Conclusions and Recommendations

6.2.5.1. This baseline risk assessment evaluated the potential for human health and ecological risks associated with exposure to MC in soil at the Former Camp Maxey.

6.2.5.2. The HHRA relied on a comparison of detected MC concentrations in soil to the TRRP Tier 1 PCLs for Residential Soil and, for metals, to background soil concentrations. The Tier 1 PCLs are constituent- and medium-specific concentrations derived to be protective of human health. They are calculated using equations, exposure assumptions, and toxicity data similar to those used in a USEPA Risk Assessment Guidance for Superfund sites baseline risk assessment. As such, use of the Tier 1 PCLs for Residential Soil addresses the risk assessment requirement in the USEPA RI/FS guidelines. No human health COCs were identified in surface or subsurface soil at the Former Camp Maxey, as all detected concentrations were less than risk-based screening values or, for metals (i.e., aluminum), less than background soil concentrations. Additionally, magnesium was eliminated as a COC because it is an essential nutrient and not expected to represent a health concern.

6.2.5.3. The SLERA consisted of a screening analysis to eliminate constituents that do not pose unacceptable ecological risks and to select COCs to evaluate potential effects. The screening analysis for the site was performed using a two-step process: 1) comparison to background and 2) ecological benchmark screening. Constituents that were screened out in this process for surface and subsurface soil were not retained for further evaluation. The results of the screening demonstrate that no ecological COCs were identified for the site. Therefore, adverse impacts are unlikely to occur for ecological receptors potentially exposed, under both current and expected future land use conditions, to constituents in soil at the Former Camp Maxey.

6.2.5.4. In conclusion, the results of this baseline risk assessment demonstrate that adverse health effects from human and ecological exposure to MC in soil at the Former Camp Maxey are not expected, and no further investigation on the basis of potential human health or ecological risk is warranted.

Table 6-6: Selection of Human Health COCs in Surface Soil

Detected Analytes	Soil Type A - Data Summary				Soil Type B - Data Summary				Human Health Risk-Based Screening Level [1]		Site-Specific Background Concentration [2]		Texas-Specific Background Concentration [3]	Soil Type A - Selection of COCs			Soil Type B - Selection of COCs		
	Number of Detections	Number of Samples	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Number of Detections	Number of Samples	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	(mg/kg)	basis	Soil Type A (mg/kg)	Soil Type B (mg/kg)		Maximum Exceeds Risk-Based Screening Level?	Maximum Exceeds Background? [4]	Human Health COPC? [5]	Maximum Exceeds Risk-Based Screening Level?	Maximum Exceeds Background? [4]	Human Health COPC? [5]
Metals																			
Aluminum	33	33	1,200	8,933	14	14	2,000	14,000	6,400	n	2,400	2,500	30,000	Yes	No	No	Yes	No	No
Antimony	0	33	ND	ND	0	14	ND	ND	1.5	n	0.53	ND	1	ND	ND	No	ND	ND	No
Barium	33	33	22	180	14	14	34	130	810	n	51	51	300	No	No	No	No	No	No
Copper	33	33	1.2	15	14	14	1.5	12	55	n	1.9	1.4	15	No	No	No	No	No	No
Magnesium	33	33	150	2,700	14	14	220	1,400	NA		323	228	NA	NA	Yes	No [6]	NA	Yes	No [6]
Lead	33	33	4.3	42	14	14	6.0	19	500	L	7.6	9.0	15	No	Yes	No	No	Yes	No
Nickel	33	33	1.5	13	14	14	2.7	13	84	n	2.6	2.0	10	No	Yes	No	No	Yes	No
Zinc	33	33	5.0	23	14	14	7.2	34	990	n	7.7	6.3	30	No	No	No	No	Yes	No
Explosives																			
1,3,5-Trinitrobenzene (TNB)	0	33	ND	ND	0	14	ND	ND	200	n	N/A	N/A	N/A	ND	N/A	No	ND	N/A	No
1,3-Dinitrobenzene (DNB)	0	33	ND	ND	0	14	ND	ND	0.67	n	N/A	N/A	N/A	ND	N/A	No	ND	N/A	No
2,4-Dinitrotoluene (DNT)	1	33	0.014	0.020	0	14	ND	ND	6.9	c	N/A	N/A	N/A	No	N/A	No	ND	N/A	No
2,6-DNT	19	33	0.018	0.095	5	14	0.020	0.099	6.9	c	N/A	N/A	N/A	No	N/A	No	No	N/A	No
2-Amino-4,6-DNT	0	33	ND	ND	0	14	ND	ND	1.1	n	N/A	N/A	N/A	ND	N/A	No	ND	N/A	No
2,4,6-Trinitrotoluene (TNT)	0	33	ND	ND	0	14	ND	ND	3.3	n	N/A	N/A	N/A	ND	N/A	No	ND	N/A	No
2-Nitrotoluene (NT)	1	33	0.038	0.096	0	14	ND	ND	21	c	N/A	N/A	N/A	No	N/A	No	ND	N/A	No
3-NT	1	33	0.038	0.081	0	14	ND	ND	67	n	N/A	N/A	N/A	No	N/A	No	ND	N/A	No
4-Amino-2,6-DNT	0	33	ND	ND	0	14	ND	ND	1.1	n	N/A	N/A	N/A	ND	N/A	No	ND	N/A	No
4-NT	1	33	0.048	0.054	0	14	ND	ND	27	n	N/A	N/A	N/A	No	N/A	No	ND	N/A	No

Notes:
1 - Human health risk-based screening levels are Texas Risk Reduction Program (TRRP) Tier 1 Residential Soil Protective Concentration Levels (PCL) for a 30-acre source area (June 29, 2012). Tier 1 PCLs for combined soil exposures (TotSoilComb) were used and are protective of incidental ingestion of soil, dermal contact with soil, inhalation of volatiles and particulates, and ingestion of above-ground and below-ground vegetables grown in soil. Depending on the toxic effect, PCLs are based on either a cancer risk of 1x10-5 or a non-cancer hazard quotient (HQ) of 1. PCLs based on adverse, non-cancer health effects were reduced by a factor of 10 (to represent a target HQ of 0.1) to address potential non-cancer health effects from exposure to multiple constituents.
2 - Site-specific background concentrations represent the average of concentrations detected in four soil samples from each of two soil types: A (Course Alluvial) and B (Fine Alluvial).
3 - Texas-specific median background concentrations are from 30 TAC §350.51(m).
4 - Background values used for screening were selected as the greater of average site-specific background concentrations for soil type A or B and Texas-specific background concentrations.
5 - Detected analytes are identified as chemicals of potential concern where maximum detected concentrations are greater than human health risk-based screening values, and for metals, where maximum concentrations are also greater than background concentrations.
6 - No human health risk-based screening value is available; however, magnesium was eliminated as a Chemical of Potential Concern because it is an essential nutrient.
c - Tier 1 PCL is based on a target cancer risk of 1x10-5.
L - Tier 1 PCL was derived using USEPA lead models.
n - Tier 1 PCL is based on a target non-cancer hazard quotient of 0.1.
NA - Not available.
N/A - Not applicable.
ND - Analyte was not detected.

Table 6-7: Selection of Human Health COCs in Subsurface Soil

Analyte	Soil Type A - Data Summary				Soil Type B - Data Summary				Human Health Risk-Based Screening Level [1]		Site-Specific Background Concentration [2]		Texas-Specific Background Concentration [3]	Soil Type A - Selection of COPCs			Soil Type B - Selection of COPCs		
	Number of Detections	Number of Samples	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Number of Detections	Number of Samples	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	(mg/kg)	basis	Soil Type A (mg/kg)	Soil Type B (mg/kg)		Maximum Exceeds Risk-Based Screening Level?	Maximum Exceeds Background? [4]	Human Health COPC? [5]	Maximum Exceeds Risk-Based Screening Level?	Maximum Exceeds Background? [4]	Human Health COPC? [5]
Metals																			
Lead	23	23	3.9	29	7	7	6.2	13	500	L	5.9	11	15	No	Yes	No	No	No	No

Notes:
1 - Human health risk-based screening levels are Texas Risk Reduction Program (TRRP) Tier 1 Residential Soil Protective Concentration Levels (PCL) for a 30-acre source area (June 29, 2012). Tier 1 PCLs for combined soil exposures (TotSoilComb) were used and are protective of incidental ingestion of soil, dermal contact with soil, inhalation of volatiles and particulates, and ingestion of above-ground and below-ground vegetables grown in soil.
2 - Site-specific background concentrations represent the average of concentrations detected in four soil samples from each of two soil types: A (Course Alluvial) and B (Fine Alluvial).
3 - Texas-specific median background concentrations are from 30 TAC §350.51(m).
4 - Background values used for screening were selected as the greater of average site-specific background concentrations for soil type A or B and Texas-specific background concentrations.
5 - Detected analytes are identified as chemicals of concern (COC) where maximum detected concentrations are greater than human health risk-based screening values, and for metals, where maximum concentrations are also greater than background concentrations.
L - Tier 1 PCL was derived using USEPA lead models.

Table 6-8: Selection of Ecological COCs in Surface Soil

Analyte	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean Concentration (mg/kg)	Ecological Benchmark [a,b]	COC? [c]
Surface Soil						
Metals						
Aluminum	100%	1,200	14,000	3,744	soil pH<5.5[d]	No
Antimony	0%	ND	ND	ND	5	No
Barium	100%	22	180	68	330	No
Copper	100%	1.2	15	3.4	70	No
Magnesium	100%	150	2,700	495	--	No (ES)
Lead	100%	4.3	42	10	120	No
Nickel	100%	1.5	13	4.3	38	No
Zinc	100%	5.0	34	12	120	No
Explosives						
1,3,5-Trinitrobenzene (TNB)	0%	ND	ND	ND	6.6	No
1,3-Dinitrobenzene (DNB)	0%	ND	ND	ND	0.07	No
2,4-Dinitrotoluene (DNT)	2%	0.014	0.014	0.019	2.5	No
2,6-DNT	40%	0.018	0.099	0.047	1.8	No
2-Amino-4,6-DNT	0%	ND	ND	ND	10	No
2,4,6-Trinitrotoluene (TNT)	0%	ND	ND	ND	6.4	No
2-Nitrotoluene (NT)	2%	0.096	0.096	0.047	9.9	No
3-NT	2%	0.081	0.081	0.045	12	No
4-Amino-2,6-DNT	0%	ND	ND	ND	3.6	No
4-NT	2%	0.054	0.054	0.049	22	No
2,4,6-Trinitrophenyl-N-methylnitramine (Tetryl)	0%	ND	ND	ND	0.99	No
1,3,5,7-Tetranitro-1,3,5,7-tetrazocane (HMX)	0%	ND	ND	ND	27	No
3,5-Dinitroaniline (DNA)	0%	ND	ND	ND	--	No
Cyclotimethylenetrinitramine (RDX)	0%	ND	ND	ND	7.5	No
Nitroglycerine (NG)	0%	ND	ND	ND	71	No
Pentaerythrite Tetranitrate (PETN)	0%	ND	ND	ND	100	No

Notes:

COC- Constituent of concern.
ES - Essential nutrient.
mg/kg - milligrams per kilogram.
ND - Analyte was not detected.
LANL - Los Alamos National Laboratory.

-- Not available/Not applicable
[a] For metals, the Texas Commission on Environmental Quality (TCEQ) ecological benchmarks for soil were used. If more recent USEPA EcoSSLs are available, those values were used. (Update to Guidance for Conducting Ecological Risk Assessments at Remediation Sites in Texas RG-263 (Revised) January 2006 Version).
[b] For explosives, the minimum no observed adverse effect level screening level available for soil, from the LANL database (LANL 2013) was used.
[c] Constituent is identified as a COC if the maximum detected concentration exceeds the ecological benchmark.
[d] The USEPA (2003) recommends that aluminum be considered for evaluation as a COC where the soil pH is less than 5.5. As discussed in Section 6.2.3.2.2.2, aluminum is not retained as a COC for evaluation at the Former Camp Maxey site based on the measured soil pH.

Table 6-9: Selection of Ecological COCs in Subsurface Soil

Analyte	Frequency of Detection	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Arithmetic Mean Concentration (mg/kg)	Ecological Benchmark [a]	COC? [b]
Subsurface Soil						
Metals						
Lead	100%	3.1	86	10	120	No

Notes:

COC- Constituent of concern.

mg/kg - milligrams per kilogram.

% - Percent.

[a] The Texas Commission on Environmental Quality (TCEQ) ecological benchmark for soil was used. If a more recent USEPA EcoSSL is available, that value was used. (Update to Guidance for Conducting Ecological Risk Assessments at Remediation Sites in Texas RG-263 (Revised) January 2006 Version).

[b] Constituent is identified as a COC if the maximum detected concentration exceeds the ecological benchmark.

7 IDENTIFICATION AND SCREENING OF ALTERNATIVES

The purpose of the FS (Sections 7 through 9) is to identify, screen, and analyze potential remedial alternatives for MRSs investigated during the RI at the Former Camp Maxey. The FS incorporates historical data and information gathered during the RI and compares remedial alternatives against the nine criteria identified in Title 40, CFR, Parts 300 to 399, the NCP 300.430. The purpose of the FS is to provide stakeholders with the information necessary to select the optimal remedial alternative(s) for each of the MRSs evaluated.

7.1 Remedial Action Objectives

7.1.1. The RI supported the characterization, defined as the nature and extent of MEC and MC, of the Former Camp Maxey for the purpose of developing and evaluating effective remedial alternatives. Details concerning the characterization of MEC and MC are provided in Section 3 of the RI and include information related to any data gaps that exist following the investigation. The results of the baseline risk assessment demonstrate that adverse health effects from human and ecological exposure to MC in soil at the Former Camp Maxey are not expected; therefore, MC remedial alternatives are not evaluated within the FS.

7.1.2. Based on the results of the RI fieldwork and review of existing data from previous investigations, it is recommended that 12 separate MRSs be delineated from the original Former Camp Maxey MRS. Of these 12 MRSs, eight are addressed in the FS to develop and evaluate remedial alternatives and four MRSs require additional investigation to adequately characterize the nature and extent of MEC potentially at the site. The four MRSs requiring additional investigation are not addressed further in the FS.

7.1.3. The following is a list of the delineated MRSs which are identified as either being addressed in the FS or needing further investigation.

1. Western Range Area A (Further Investigation)
2. Western Range Area B (Feasibility Study)
3. Western Range Area C (Feasibility Study)
4. Western Range Area D (Feasibility Study)
5. Western Range Area E (Further Investigation)
6. Eastern Range Area A (Feasibility Study)
7. Eastern Range Area B (Feasibility Study)
8. Eastern Range Area C (Feasibility Study)
9. Grenade Range Area (Feasibility Study)
10. Cave Training Area (Further Investigation)
11. Mine and Booby Trap Training Area (Feasibility Study)
12. Bivouac Area (Further Investigation)

7.1.4. The following areas within the Former Camp Maxey MRS were not investigated as part of the RI and are not addressed in the FS.

1. Pat Mayse Lake (Not included in project scope. Further investigation required.)
2. Texas National Guard (Not FUDS program eligible.)

7.1.5. The MEC remedial action objective (RAO) for all of the MRSs is to limit interaction between residual MEC and persons accessing the MRSs. Methods by which interaction between potential receptors and MEC can be limited include, but are not limited to, LUCs (e.g., signage, restrictive use, fencing, etc.), education, and surface and subsurface MEC removals. Table 7-1 identifies the preliminary remediation goals for each MRS being addressed in the FS.

Table 7-1: Remedial Action Objectives

MRS	Preliminary Remediation Goals
Western Range Area B	Reduce potential human interaction with MEC while engaged in intrusive and non-intrusive recreational activities on the ground surface and to a maximum anticipated receptor intrusive depth of 12 inches (i.e., hunting, camping, equestrian, fishing, hiking, wildlife viewing, and lake boating access). MEC has not been located in this MRS and therefore the probability of encountering surface or subsurface MEC is low.
Western Range Area C	Reduce potential human interaction with MEC while engaged in intrusive and non-intrusive recreational activities on the ground surface and to a maximum anticipated receptor intrusive depth of 12 inches (i.e., hunting, camping, equestrian, fishing, hiking, lake boating access, and wildlife viewing). Based on the depth of MD and MEC located in the MRS, it is anticipated that MEC may be located to a depth of 12 inches below the ground surface.
Western Range Area D	Reduce potential human interaction with MEC while engaged in intrusive and non-intrusive recreational activities on the ground surface and to a maximum anticipated receptor intrusive depth of 12 inches (i.e., hunting, camping, equestrian, fishing, hiking, and wildlife viewing). Based on the depth of MD and MEC located in the MRS, it is anticipated that MEC may be located to a depth of 12 inches below the ground surface.
Eastern Range Area A	Reduce potential human interaction with MEC while engaged in intrusive and non-intrusive recreational activities on the ground surface and to a maximum anticipated receptor intrusive

MRS	Preliminary Remediation Goals
	depth of 12 inches (i.e., hunting, camping, equestrian, fishing, hiking, wildlife viewing, swimming, and lake boating access). Based on the depth of MD and MEC located in the MRS, it is anticipated that MEC may be located to a depth of 12 inches below the ground surface.
Eastern Range Area B	Reduce potential human interaction with MEC while engaged in intrusive and non-intrusive recreational activities on the ground surface and to a maximum anticipated receptor intrusive depth of 12 inches (i.e., hunting, camping, equestrian, fishing, hiking, and wildlife viewing). Based on the depth of MD and MEC located in the MRS, it is anticipated that MEC may be located to a depth of 12 inches below the ground surface.
Eastern Range Area C	Reduce potential human interaction with MEC while engaged in non-intrusive recreational activities on the ground surface (i.e., hunting, equestrian, fishing, hiking, wildlife viewing, and lake boating access). Based on the depth of MD located in the MRS, it is anticipated that MEC may be located to a depth of 12 inches below the ground surface.
Grenade Range Area	Reduce potential human interaction with MEC while engaged in non-intrusive recreational activities on the ground surface (i.e., hunting, equestrian, hiking, and wildlife viewing). Based on the depth of MD located in the MRS, it is anticipated that MEC may be located to a depth of 12 inches below the ground surface.
Mine and Booby Trap Training Area	Reduce potential human interaction with MEC while engaged in intrusive and non-intrusive residential related activities on the ground surface and to a depth of six inches. Based on historical use, MEC is expected at depths between zero and six inches.

7.2 GENERAL RESPONSE ACTIONS

A limited number of MEC response actions are available to address MEC contaminated sites. The following four actions have been identified and will be used in combination with one another to develop remedial alternatives, which will be evaluated for potential implementation at each of the sites at the Former Camp Maxey covered under this FS. The MEC-only remedial actions below are typically evaluated for MMRP sites and are considered for the Former Camp Maxey. Alternatives may also be a combination of individual remedial actions.

1. No Action
2. LUCs
3. Surface Removal
4. Subsurface Removal

7.2.1 No Action

The No Action response involves taking no action at an MRS. No additional MEC would be removed from the site and no institutional controls would be implemented. The no action response serves as the baseline against which the effectiveness of other alternatives is judged.

7.2.2 Land Use Controls

LUCs are used to reduce and prevent explosive hazard exposure to potential human and ecological receptors. LUCs for MEC generally include physical and/or administrative/legal mechanisms that minimize the potential for exposure by limiting land use. LUC strategies can include engineering or non-engineering measures that are designed based on the remaining hazard. Institutional controls consist of legal or administrative mechanisms. Legal mechanisms, or institutional control, as used in the NCP, consist of enforcing property restriction through ownership (e.g., deed notices, restrictive covenants, negative easements). Administrative mechanisms are essentially regulatory in nature and include notices, local land use plans and ordinances, construction permits, and land use management systems to ensure compliance with use restrictions. Education (e.g., pamphlets, videos, meetings) is commonly used to reduce the risk to property owners or the public from unexpected exposure to hazards. Engineering controls include physical mechanisms, such as placing fencing or signage to protect property owners and the public from hazards by limiting access or preventing public access to areas. Physical mechanisms are a useful deterrent to prevent unintentional access to a hazardous site and commonly work in conjunction with non-engineering controls to provide the best protection to human health and the environment. The enforcement of LUCs on a property is often complicated. At the Former Camp Maxey, some of the property is owned by the federal government. On these properties land use restrictions can be enforced and maintained and engineering controls (e.g., signs and fences) replaced relatively easily. Separately, some properties are privately owned making any enforcement of LUCS problematic and often difficult. This process does not prevent exposure to MEC in all cases; however, it can effectively prevent exposure by restricting access to these items. LUCS are often used in conjunction with other response actions.

7.2.3 Surface Removal

A surface removal is the removal of any MEC/MPPEH visible in part or whole on the surface. No subsurface removal of MEC/MPPEH would be completed under this action. The surface removal would be conducted by qualified UXO technicians using handheld analog metal detectors. If MEC or MPPEH is discovered, it would be disposed of using explosive demolition procedures. The general components for a surface removal include:

- Vegetation removal (to expose the ground surface only as necessary)
    - Limited to grass and underbrush, trees three inches in diameter or greater should be left in place.

    - Removal of low lying branches is allowable but not the cutting of the main trunk.
    - Areas in which vegetation had been previously cut should be targeted for additional investigations.
- Physical surface removal of MEC/MPPEH in designated areas or across the entire site
- Demolition and disposal operations
    - Demolition activities will be coordinated with all appropriate stakeholders, specifically USACE and TPWD, to ensure standard operating procedurs are followed to prevent fires.
- Re-vegetation and erosion control measures (as necessary)

7.2.4 Subsurface Removal

7.2.4.1. Subsurface anomalies may be identified using handheld analog magnetometer or DGM instruments (e.g., EM-61). Subsurface removal consists of employing geophysical instruments (analog or DGM) to identify subsurface anomalies followed by an intrusive investigation (hand dig and inspect). Surface anomalies are also identified, investigated, and removed as necessary during a subsurface removal. The components of a subsurface removal include:

- Vegetation removal (to expose the ground surface)
    - Limited to grass and underbrush, trees three inches in diameter or greater should be left in place.
    - Removal of low lying branches is allowable but not the cutting of the main trunk.
    - Areas in which vegetation had been previously cut should be targeted for additional investigations.
- Surface removal of MEC/MPPEH in designated areas or across the entire site
- Subsurface investigations
- Demolition and disposal operations
    - Demolition activities will be coordinated with all appropriate stakeholders, specifically USACE and TPWD, to ensure standard operating procedures are followed to prevent fires.
- Re-vegetation and erosion control measures (as necessary)

7.2.4.2. Investigation and removal techniques include hand digging, mechanical digging with conventional earth moving equipment in conjunction with hand digging; mechanical digging using armored equipment; and mechanical digging using remotely operated equipment.

7.3 Identification and Screening of Technologies

As presented in RI/FS guidance section of Engineer Pamphlet (EP) 1110-1-18 (USACE, 2006), the natural characteristics of a particular site may limit the technologies that may be used. Due to the limited number of appropriate technology types and alternatives for MEC only remedial actions, a limited number of remedial alternatives and technologies can be developed to meet the project objectives, as outlined above. A limited screening of technologies, specific for MEC identification and removal as related to the Former Camp Maxey, is included below.

7.3.1 Identification and Screening of MEC Technologies

MEC technologies were divided into three categories for discussion to include detection, recovery, and disposal. The following technologies were identified as being viable options for the general response actions. Although these technologies are industry proven for detection and removal of MEC, there are technology limitations and surface/subsurface residual hazards may remain even following a remedial action. Therefore, LUCs are most often necessary for any site where MEC has been previously identified even if a removal action has occurred.

7.3.2 Evaluation of Technologies

7.3.2.1 Detection Technologies

The objective of MEC detection is to determine the presence and location of potential MEC items during investigation and removal. For the Former Camp Maxey, ground based magnetic and electromagnetic sensors are available and could be used. Magnetic sensors often have a greater detection depth but can also be less effective in certain geological conditions. The two types of geophysical sensors can be applied to either analog or digital systems. Both digital and analog geophysical equipment can be used to detect MEC at Former Camp Maxey. DGM has a higher level of quality control and provides the ability for advanced processing to limit the number of intrusive investigations. The digital data collected provides a record that can be used to document and evaluate the coverage and quality of the clearance. Analog instruments rely on an operator's ability to detect geophysical anomalies potentially caused by MEC based on the real-time response of the instrument. QC plans must include a method of ensuring proper coverage and detection. Analog procedures are often more effective in areas with steep, rocky terrain and in areas with limits on clearing vegetation. In areas with sensitive habitats, analog methods may be preferable because vegetation clearing can be more selective. Analog instruments may increase production rates in difficult environments because removal is conducted simultaneously with detection, and because of rapid vegetation re-growth, which may make reacquisition difficult. The depths for a subsurface removal action would be based on site use and depth of munitions. For this effort, it is assumed a combination of analog and digital electromagnetic equipment will be used to locate subsurface anomalies. The selection of specific instruments will need to consider the presence of "hot rock" (i.e., rock with a magnetic signature). Digital EMI systems, such as EM-61, and analog sensors that have ground balancing have been shown to work well in hot rock environments.

7.3.2.2 Recovery Technologies

7.3.2.2.1. Removal or recovery technologies generally include hand excavation or mechanized equipment. Hand excavation consists of digging individual anomalies using commonly available hand tools. This is the industry standard method for performing MEC removals and investigations. The individual UXO Technicians dig an anomaly that was either located using hand held instruments or DGM instrument. The method involves using the hand tools (shovels, picks, trowels, etc.) to excavate the selected item using only human power to do the work. Depending on a number of criteria (e.g., expected MEC and operating environment), actual techniques can vary from removal in shallow layers of the covering surfaces to use of pick and shovel for deeper items.

7.3.2.2.2. Mechanical equipment can also be used to excavate and remove anomalies from the surface and/or subsurface, such as with a backhoe or excavator. Advantages of mechanical equipment include increased production rates.

7.3.2.3 Disposal Technologies

7.3.2.2.1. The objective of a removal action is to eliminate or reduce receptor exposure to MEC hazards. Blow-in-Place is the destruction of any MEC by detonating the item without moving it from the location where it was found. Normally, this is accomplished by placing an explosive charge alongside the item. MEC is dealt with individually in this approach, requiring direct exposure of personnel to each individual item.

7.3.2.2.2. Consolidate and Blow operations are defined as the collection, configuration, and subsequent destruction by explosive detonation of MEC. This process can be used either “in grid” (i.e., within a current working sector) or at a consolidation point, but can only be employed for munitions that have been inspected and deemed acceptable to move. This determination should be made by senior UXO-qualified personnel in accordance with appropriate regulations and guidance.

7.3.3 Evaluation of Technologies

The evaluation of screened detection, recovery, and disposal remedial technologies and process options is illustrated on Figure 7-1.

Figure 7-1: Technology Screening Matrix

General Response Actions	Remedial Technology	Process Option	Effectiveness	Implementability	Cost
No Action	None	Not Applicable	**N/A** - No remedial action technologies are necessary for the no action alternative.	**N/A** - No remedial action technologies are necessary for the no action alternative.	**N/A** - No remedial action technologies are necessary for the no action alternative.
Surface Removal	Detection	Analog	**Medium/High** - Some technologies only detect ferrous anomalies. Appropriate sensors would be necessary for hot rock environments.	**High** - Analog sensors can be easily used in any terrain and easier in thick vegetation.	**Medium** - Manpower intensive. Dependent on vegetation and terrain. Additional seeding for QC required.
	Removal	Manual	**High** - Industry standard for MEC recovery.	**High** - Can be accomplished in almost any terrain and climate. Limited only by the number of people available.	**Low/Medium** - Standard by which all others are measured. Typically this is low cost option.
		Mechanized	**High** - Increases production rate but may not be as effective on steep terrain or with limited access areas	**Medium** - May be limited by steep terrain and inaccessiable areas for equipment (islands).	**Medium/High** - Costs for equipment may be balanced by increased production in accessible areas. Cost may be high to bring in equipment to remote areas.
	Disposal	Blow-in-Place	**High** - Each MEC item is individually destroyed with subsequent results individually verified. Post-detonation sampling may be required to evaluate any residual MC.	**High** - Techniques, transportable tools, and equipment, suited to most environments. Public exposure can limit viability. Engineering controls improve implementation.	**Medium** - Manpower intensive. Costs increase in areas of higher population densities or where public access must be monitored/controlled. Also may increase costs for explosives (multiple shots).
		Consolidate and Blow	**High** - Techniques recently developed and refined are providing documented successes. Donor munitions also proving effective. Limited in use to munitions that are "safe to move". Post-detonation sampling may be required to evaluate any residual MC.	**Medium/High** - Generally employs same techniques, tools and equipment as BIP. Requires larger area and greater controls. Most engineering controls not completely effective/applicable for these operations.	**Low/Medium** - Manpower intensive, may require material handling equipment for large scale operations.
Subsurface Removal	Detection	Analog	**Medium/High** - Some technologies only detect ferrous anomalies. Appropriate sensors would be necessary for hot rock environments.	**High** - Analog sensors can be easily used in any terrain and easier in thick vegetation.	**Medium** - Manpower intensive. Dependent on vegetation and terrain. Additional seeding for QC required.
		Digital Geophysical Mapping	**High** - Data is digital and provides a record of detections. Reduces number of digs.	**Medium** - Equipment can be cumbersome and may not be suitable to all terrain and climates. Thick vegetation may have to removed to complete mapping.	**High** - Additional manpower required. Lower production rates.
	Removal	Hand Excavation	**High** - Industry standard for MEC recovery.	**High** - Can be accomplished in almost any terrain and climate. Limited only by the number of people available.	**Low/Medium** - Standard by which all others are measured. Typically this is low cost option.
		Mechanized	**High** - Increases production rate but may not be as effective on steep terrain or with limited access areas	**Medium** - May be limited by steep terrain and inaccessiable areas for equipment (islands).	**Medium/High** - Costs for equipment may be balanced by increased production in accessible areas. Cost may be high to bring in equipment to remote areas.
	Disposal	Blow-in-Place	**High** - Each MEC item is individually destroyed with subsequent results individually verified. Post-detonation sampling may be required to evaluate any residual MC.	**High** - Techniques, transportable tools, and equipment, suited to most environments. Public exposure can limit viability. Engineering controls improve implementation.	**Medium** - Manpower intensive. Costs increase in areas of higher population densities or where public access must be monitored/controlled. Also may increase costs for explosives (multiple shots).
		Consolidate and Blow	**High** - Techniques recently developed and refined are providing documented successes. Donor munitions also proving effective. Limited in use to munitions that are "safe to move". Post-detonation sampling may be required to evaluate any residual MC.	**Medium/High** - Generally employs same techniques, tools and equipment as BIP. Requires larger area and greater controls. Most engineering controls not completely effective/applicable for these operations.	**Low/Medium** - Manpower intensive, may require material handling equipment for large scale operations.

8 DEVELOPMENT AND SCREENING OF ALTERNATIVES

8.1 DEVELOPMENT OF ALTERNATIVES

8.1.1. This section presents the remedial alternatives developed for the following sites at the Former Camp Maxey based upon data collected during the RI/FS field activities. Based on varying property use and potential receptors on separate portions of the site and to properly develop and screen alternatives, the MRSs have been divided into the following subareas for evaluation.

1. Western Range Area B
2. Western Range Area C
3. Western Range Area D
4. Eastern Range Area A
5. Eastern Range Area B
6. Eastern Range Area C
7. Grenade Range Area
8. Mine and Booby Trap Area

8.1.2. Data generated were used to assess the potential safety hazards and/or risks to enable selection of a cost effective and efficient response action (if required). During the RI Report, a MEC HA was conducted for the MEC and MPPEH issues.

8.1.3. Based on the results of the RI and MEC HA, safety hazards associated with MEC and MPPEH exist at all of the MRSs investigated during this RI/FS. The acute nature of the hazard warrants consideration of a munitions response action.

8.1.4. MEC remedial alternatives were developed for potential implementation at each of the MRSs based on the results of the RI and are evaluated for each MRS where sufficient data is available (Table 8-1). A general description of each response action is included in the developed remedial alternatives in Section 7.2. The alternatives represent a reasonable range of alternatives that meet the requirements of EP-1110-1-18 (USACE, 2006).

Table 8-1: Remedial Alternatives Evaluated for Each MRS

MRS	Alternatives
Western Range Area B	1. No Action 2. LUCs 3. LUCs; 100 percent surface clearance 4. Unlimited Use/Access (100 percent subsurface clearance to a depth of 24 inches)
Western Range Area C	1. No Action 2. LUCs; Focused surface clearance for frequented public use areas (i.e. trail, dirt roads, picnic areas, camp grounds, shorelines) 3. LUCs; 100 percent surface clearance and focused 12 inch subsurface clearance for frequented public use areas (i.e. trail, dirt roads, picnic areas, camp grounds, shorelines) 4. Unlimited Use/Access (100 percent subsurface clearance to a depth of 24 inches)
Western Range Area D	1. No Action 2. LUCs; 100 percent surface clearance 3. LUCs; Focused surface and 12 inch subsurface clearance for frequented public use areas (i.e. trail, dirt roads, picnic areas, camp grounds, shorelines) 4. Unlimited Use/Access (100 percent subsurface clearance to a depth of 24 inches)
Eastern Range Area A	1. No Action 2. LUCs; 100 percent surface clearance 3. LUCs; Focused surface and 12 inch subsurface clearance for frequented public use areas (i.e. trails, dirt roads, picnic areas, camp grounds, beaches outside of previously cleared areas) 4. Unlimited Use/Access (100 percent subsurface clearance to a depth of 12 inches)
Eastern Range Area B	1. No Action 2. LUCs; Focused surface clearance for frequented public use areas (i.e. trails, dirt roads, picnic areas, camp grounds, beaches outside of previously cleared areas) 3. LUCs; 100 percent surface clearance and focused 12 inch subsurface clearance for frequented public use areas (i.e. trails, dirt roads, picnic areas, camp grounds, beaches outside of previously cleared areas) 4. Unlimited Use/Access (100 percent subsurface clearance to a depth of 12 inches)
Eastern Range Area C	1. No Action 2. LUCs 3. LUCs; Focused surface clearance for frequented public use areas (i.e. trails, picnic areas, shorelines) where only surface activities are expected 4. LUCS; 100 percent surface clearance 5. Unlimited Use/Access (100 percent subsurface clearance to a depth of 12 inches)

MRS	Alternatives
Grenade Range Area	1. No Action 2. LUCs 3. LUCs; Focused surface clearance for frequented public use areas (i.e. trails, picnic areas) 4. LUCS; 100 percent surface clearance 5. Unlimited Use/Access (100 percent subsurface clearance to a depth of 12 inches)
Mine and Booby Trap Area	1. No Action 2. LUCs 3. LUCs; 100 percent surface and six inch subsurface clearance 4. Unlimited Use/Access (100 percent subsurface clearance to a depth of 12 inches)

8.2 SCREENING OF INDIVIDUAL ALTERNATIVES

The preliminary screening of individual alternatives is not required for many MEC sites because of the limited number of response actions and resulting remedial alternatives. Each of the remedial alternatives developed for the sites will be individually and comparatively analyzed in the following sections to determine strengths and weaknesses.

9 DETAILED ANALYSIS OF ALTERNATIVES

9.1 INTRODUCTION OF NCP CRITERIA

9.1.1. The NCP (40 CFR 300) states that the primary objective of the FS is to "ensure that appropriate remedial alternatives are developed and evaluated," and that "the number and type of alternatives to be analyzed shall be determined at each site, taking into account the scope, characteristics, and complexity of the site problem that is being addressed." In this section, the remedial action alternatives that were developed are evaluated against the nine criteria identified in the NCP and how well they meet the RAOs. Remedial alternatives have been developed in an effort to distinguish a cost-effective remedial action that is protective of human health and the environment and can be implemented with conventional means. The first seven criteria are addressed in this report. The last two criteria (regulatory and community acceptance) will be addressed during remedy selection. The nine NCP criteria are provided below:

- Protection of human health and the environment
- Compliance with ARARs
- Long-term effectiveness and permanence
- Reduction of toxicity, mobility, or volume
- Short-term effectiveness
- Implementability
- Cost
- Regulatory acceptance
- Community acceptance

9.1.2. The NCP evaluation criteria can be separated into three categories: threshold criteria, balancing criteria, and modifying criteria. The threshold criteria judges if the alternative is protective of human health and the environment, and in compliance with the ARARs. The balancing criteria look at both the short- and long-term effectiveness and permanence of the alternative, the reduction of volume, implementability, and cost of the alternative. The modifying criteria include the regulatory and community acceptance, which are evaluated in this report based on interactions to date with the regulatory community and public and will be re-evaluated during remedy selection. The final risk management decision is one that determines which cost-effective remedy offers the best balance of all the NCP factors. These criteria take into account both current and future land uses and are applied with regards to the current, as well as, reasonable future land use at the site.

9.1.3. In addition, the information from the MEC HA input factors and outputs can be used to support the analysis of alternatives. The FS examines three broad criteria: Effectiveness, Implementability, and Cost. For the Effectiveness Criterion, the MEC HA input factors of Energetic Material Type, Location of Additional Human Receptors, Site Accessibility, Amount of MEC, and MEC Classification can provide information to support evaluation of short-term effectiveness, and compliance with ARARs.

9.1.4. An estimated cost for each alternative was developed and is presented in detail in Appendix K.

9.2 NCP Criteria Categories

9.2.1. Section 300.430(e) of the NCP lists nine criteria against which each remedial alternative must be assessed. The first two criteria are threshold criteria that must be met by each Alternative. The next five criteria are the primary balancing criteria upon which the analysis is based. The final two criteria are referred to as modifying criteria and are applied after the subsequent public comment period to evaluate state and community acceptance. The acceptability or performance of each Alternative against the criteria is evaluated individually so that relative strengths and weaknesses may be identified.

9.2.2. The two threshold criteria are:

- Protection of human health and the environment; and
- Compliance with ARARs

9.2.3. The five primary balancing criteria upon which the analysis is based on are:

- Long-term effectiveness and permanence;
- Reduction of volume, or removal, of MEC;
- Short-term effectiveness;
- Implementability; and
- Cost

9.2.4. The two modifying criteria upon which the analysis is based on are:

- Regulatory acceptance; and
- Community acceptance

9.2.5. Regulatory and community acceptance evaluation included in the FS are based on previous discussions with regulatory agencies and the community during TPP meetings and field activities. These criteria will be re-evaluated during the CERCLA process following receipt of regulatory comments and public review of the Proposed Plan. The final evaluation for both criteria will be addressed in the Decision Document or Record of Decision.

9.2.1 Definitions of NCP Criteria Categories

9.2.1.1 Overall Protection of Human Health and the Environment

This criterion addresses whether a remedial alternative will achieve adequate protection of human health and the environment and describes how MEC at the site will be eliminated, reduced, or controlled through treatment, engineering, and/or LUCs. Because there is not an established threshold for MEC hazard, the goal is to effectively minimize or eliminate the exposure pathway between the MEC and receptor.

9.2.1.2 Compliance with ARARs

Addresses whether a remedial alternative meets all applicable, appropriate, or relevant selected federal and state environmental statutes and regulations. To be acceptable, an alternative shall comply with ARARs or be covered by a waiver.

9.2.1.3 Long-Term Effectiveness and Permanence

This criterion addresses the ability of a remedial alternative to maintain reliable protection of human health and the environment over time. This criterion considers the magnitude of residual hazard, the adequacy of the response in limiting the hazard, and whether LUCs and long-term maintenance are required.

9.2.1.4 Reduction of Volume, or Removal, of MEC

This criterion relates to the extent to which the remedial alternatives permanently reduce the volume of MEC and reduces the associated safety hazard. Factors for this criterion for MEC include the degree of permanence of the remedial action, the amount of MEC removed/demolished, and the type and quantity of MEC remaining.

9.2.1.5 Short-Term Effectiveness

Short-term effectiveness addresses the period of time needed to implement the remedy and any adverse impacts that may be posed to workers, the community, and the environment during implementation. MEC removal poses risks to workers and the public that are not associated with environmental contaminants that must be considered and controlled.

9.2.1.6 Implementability

The technical and administrative feasibility of implementing each Alternative and the availability of services and materials are addressed by this criterion. This criterion also considers the degree of coordination required by the regulatory agencies, successful implementation of the remedial action at similar sites, and research to realistically predict field implementability.

9.2.1.7 Cost

This criterion addresses the capital costs, in addition to annual costs anticipated for implementation of the response action.

9.2.1.8 Regulatory Acceptance

This criterion is used to evaluate the technical and administrative concerns of the regulatory community regarding the alternatives, including an assessment of the regulatory community's position and key concerns regarding the alternative, and comments on ARARs or the proposed use of waivers.

9.2.1.9 Community Acceptance

This criterion includes an evaluation of the concerns of the public regarding the alternatives. It determines which component of the alternatives interested persons in the community support, have reservations about, or oppose.

9.3 Individual Analysis of Alternatives

9.3.1 Western Range Area B

9.3.1.1 No Action

The No Action alternative involves taking no action at Western Range Area B. Under this alternative, no further effort or resources would be expended. An analysis of the No Action alternative based on the NCP criteria is provided below. A summary of this alternative compared to the NCP criteria is presented in Table 9-1.

9.3.1.1.1 Threshold Criteria

The No Action alternative does not meet the threshold factor since no action would be taken to reduce the risk of potential receptor exposure to MEC and does not offer protection of human health and the environment. Since no actions would be taken, an assessment of ARARs is not appropriate. Additionally, this alternative does not meet RAOs for the MRS.

9.3.1.1.2 Balancing Criteria

The No Action alternative is not effective in the short or long-term because no actions would be taken to reduce potential contact with MEC nor does this alternative employ an action that will result in a permanent solution for the site. The "reduction of toxicity, mobility, and volume" generally refers to MC. However, the "volume" or potential hazards associated with MEC would not be reduced with the No Action alternative since no action would be taken. This alternative is easily implementable as no actions would be taken and is also the lowest cost alternative since there would be no associated cost.

9.3.1.1.3 Modifying Criteria

The No Action alternative will most likely not gain regulatory or community acceptance as there would be no change to the risk of potential receptor exposure to MEC. Regulatory and community acceptance of the alternatives will be further evaluated following the public comment period for the FS and during the Proposed Plan (PP).

9.3.1.2 Land Use Controls

The LUC alternative requires that signs be installed on and around the MRS and that an educational program be implemented to warn of the potential explosive hazards associated with the site. A Long Term Management (LTM) plan would be required to identify LUC enforcement actions, to inspect LUCs during the five-year review period and provide educational material on a periodic basis. In addition, the LTM plan will address the potential for MEC that may become exposed due to natural forces such as erosion along shorelines. An assessment based on the NCP criteria is provided below. The summary of the LUC alternative compared to the NCP criteria is presented in Table 9-1.

9.3.1.2.1 Threshold Criteria

The LUC alternative meets the threshold criteria and would provide for reasonable protection to potential human receptors based on the results of the RI field activities and future anticipated land use of the site. MEC density across the site is considered low based on the historic field activities and MEC finds. The site is owned by USACE and managed by TPWD and the reasonably anticipated future land use remains unchanged from the current land use; no development is anticipated to occur at the site.

Although this alternative would not remove any MEC from the site, this alternative will increase awareness of human receptors to the potential explosives hazards at the site and limit the potential for receptors to contact MEC in the subsurface where dig restrictions are in place. This alternative does not address ecological receptors; however, the risk to ecological receptors is considered low for MEC. The environment would incur a low level of disturbance since minimal activities would be required. This alternative would comply with the applicable ARARs listed in Section 2.

9.3.1.2.2 Balancing Criteria

9.3.1.2.2.1. The LUC alternative can be effective over the short- and long-term because it educates the site users of the potential explosive hazards (signs/educational programs) and limits the potential for receptors to encounter MEC in the subsurface by establishing dig restrictions on public property. The reduction of toxicity, mobility, and volume is generally associated with MC. However, if applied towards MEC, the LUC alternative would not reduce the "volume" of MEC but it would reduce the effective "toxicity" (potential of MEC to result in physical harm to receptors) by limiting exposure pathways through education and dig restrictions. Based on the nature of the hazard (explosive), residual MEC risk will remain on site regardless of which remedial alternatives are implemented. LUCs and a LTM plan are typically the best ways to manage residual risk from potential MEC (whether as stand alone or in part with other remedial alternatives).

9.3.1.2.2.2. The LUC alternative can be implemented relatively easily and cost effectively by installing signs on and around the site and by hosting education meetings with residents and by making educational material available for workers and visitors. The majority of the MRS is on public property making the implementation and enforcement of LUCs feasible; however, portions of the MRS are located on private property where the implementation and enforcement of LUCs are much more difficult and require consent from the landowner. ROEs were granted for RI field work for the private parcels within the MRS; therefore, implementation of LUCs may be more practical within the private property at this MRS compared to private parcels where no ROEs have previously been granted. Costs for the remedial action and LTM (30 years) are presented in Table 9-9. Data supporting the cost estimates are presented in Appendix K. Overall, the LUC alternative is a relatively low cost, easily implementable alternative.

9.3.1.2.3 Modifying Criteria

The LUC alternative may potentially gain regulatory or community acceptance as it would provide notification to potential human receptors (trespassers) through LUCs. However, this alternative does not remove any MEC which may be unacceptable. Regulatory and community acceptance of the alternatives will be further evaluated following the public comment period for the FS Report and during the PP.

9.3.1.3 Land Use Controls; 100 Percent Surface Clearance

This alternative consists of conducting a surface clearance over the entire MRS (100 percent) and implementation of the same LUCs outlined in the LUC alternative for this MRS without signage. Educational programs will also be put in place to notify and educate people who use the area for recreational purposes. An assessment based on the NCP criteria is provided below. The summary of this alternative compared to the NCP criteria is presented in Table 9-1.

9.3.1.3.1 Threshold Criteria

This alternative meets the threshold criteria and would provide reasonable protection to potential human and ecological receptors since MEC at the ground surface would be removed, and LUCs would be implemented for risk management. There is a residual risk of MEC surfacing through mechanisms such as erosion or storm surge in beach and/or shoreline areas. However, LUCs would further reduce and help prevent exposure of human receptors to MEC introduced on the surface by increasing awareness and discouraging contact. Furthermore, LUCs would educate potential human receptors of the possible hazards at the site. The environment would incur an extremely high level of disturbance as surface removal activities would require that vegetation be removed from large areas of the MRS. This alternative would comply with the applicable ARARs listed in Section 2.

9.3.1.3.2 Balancing Criteria

9.3.1.3.2.1. This alternative would be effective over the short- and long-term because it would remove MEC from the ground surface, which limits the direct exposure pathway and educates the site users of the potential explosive hazards (educational programs/dig restrictions). There would be a slight increased short-term risk to workers associated with the surface removal activities. While subsurface MEC would potentially still be present, the use of LUCs would help reduce the potential interaction between human receptors and MEC. This alternative can be considered a permanent solution primarily because of the LUCs and associated LTM plan. As previously discussed, residual risk from MEC over the short and long-term can be managed by appropriate site management. As stated in the analysis of the LUC alternative, the reduction of toxicity, mobility, and volume is generally associated with MC. However, this alternative would essentially reduce the “volume” of MEC on the ground surface. LUCs, with enforcement, would reduce the effective “toxicity” (potential of MEC to result in physical harm to receptors).

9.3.1.3.2.2. This alternative can be implemented relatively easily using conventional MEC surface removal and disposal techniques and equipment, and installation of LUCs. Implementation of this alternative would increase the amount of time and resources for the remedy when compared with the LUC alternative. Costs for the remedial action and LTM (30 years) are presented in Table 9-9. Data supporting the cost estimates are presented in Appendix K.

9.3.1.3.3 Modifying Criteria

This alternative may potentially gain regulatory or community acceptance as it would provide reasonable protection to potential human receptors through the surface removal of MEC and LUCs. Regulatory and community acceptance of alternatives will be further evaluated following the public comment period for the FS Report and during the PP.

9.3.1.4 Unlimited Use/Access (100 Percent Subsurface Clearance)

This alternative consists of conducting a surface and subsurface clearance over the entire site allowing unlimited use and access for the property. The subsurface clearance will be completed to a depth of 24 inches bgs to ensure the property is acceptable for unlimited use and access. An assessment based on the NCP criteria is provided below. The summary of this alternative compared to the NCP criteria is presented in Table 9-1.

9.3.1.4.1 Threshold Criteria

This alternative meets the threshold criteria and would provide reasonable protection to potential human and ecological receptors since MEC on the surface and in the subsurface would be removed across the entire site allowing unlimited use and access for the site. The environment would incur a relatively high level of disturbance as removal activities would be conducted over the entire site requiring substantial brush and tree removal and subsurface excavations. This alternative would comply with the applicable ARARs listed in Section 2.

9.3.1.4.2 Balancing Criteria

9.3.1.4.2.1. This alternative would be effective over the short- and long-term because it would remove MEC from the surface and subsurface at the site, which limits the direct exposure pathways to human and ecological receptors. There would be a slight increased short-term risk to workers associated with the clearance activities. This alternative can be considered a permanent solution because the extensive removal action would greatly reduce the risk associated with MEC as MEC would presumably be removed from the site to the greatest extent possible. As stated in the analysis of the LUC alternative, the reduction of toxicity, mobility, and volume is generally associated with MC. However, this alternative would essentially remove the "volume" of MEC on the surface and in the subsurface.

9.3.1.4.2.2. This alternative would be implemented with moderate difficulty using conventional MEC surface and subsurface removal and disposal techniques and equipment. Implementation of this alternative would require a substantial amount of time and resources. Costs for the remedial action and LTM (30 years) are presented in Table 9-9. Data supporting the cost estimates are presented in Appendix K.

9.3.1.4.3 Modifying Criteria

This alternative may potentially gain regulatory or community acceptance as it would provide reasonable protection to potential human receptors through the surface and subsurface removal of MEC throughout the entire site. Regulatory and community acceptance of alternatives will be further evaluated following the public comment period for the FS Report and during the PP.

9.3.2 Western Range Area C

9.3.2.1 No Action

The No Action alternative involves taking no action at Western Range Area C. Under this alternative, no further effort or resources would be expended. An analysis of the No Action alternative based on the NCP criteria is provided below. A summary of this alternative compared to the NCP criteria is presented in Table 9-2.

9.3.2.1.1 Threshold Criteria

The No Action alternative does not meet the threshold factor since no action would be taken to reduce the risk of potential receptor exposure to MEC and does not offer protection of human health and the environment. Since no actions would be taken, an assessment of ARARs is not appropriate. Additionally, this alternative does not meet RAOs for the MRS.

9.3.2.1.2 Balancing Criteria

The No Action alternative is not effective in the short or long-term because no actions would be taken to reduce potential contact with MEC nor does this alternative employ an action that will result in a permanent solution for the site. The "reduction of toxicity, mobility, and volume" generally refers to MC. However, the "volume" or potential hazards associated with MEC would not be reduced with the No Action alternative since no action would be taken. This alternative is easily implementable as no actions would be taken and is also the lowest cost alternative since there would be no associated cost.

9.3.2.1.3 Modifying Criteria

The No Action alternative will most likely not gain regulatory or community acceptance as there would be no change to the risk of potential receptor exposure to MEC. Regulatory and community acceptance of the alternatives will be further evaluated following the public comment period for the FS and during the PP.

9.3.2.2 Land Use Controls; Focused Surface Clearance

This alternative consists of conducting a surface clearance in frequented public use areas at the site (e.g., trails, dirt roads, picnic areas, camp grounds, shorelines). Surface clearances will be conducted in areas frequented by recreational users. LUCs would consist of restrictions placed on public property providing permanent notice of actual and/or potential hazards in the form of a deed notice, restrictive covenant and equivalent zoning or ordinance functionally equivalent to a deed notice. Educational programs will be put in place to notify and educate people who use the area for recreational purposes. An assessment based on the NCP criteria is provided below. The summary of this alternative compared to the NCP criteria is presented in Table 9-2.

9.3.2.2.1 Threshold Criteria

This alternative meets the threshold criteria and would provide reasonable protection to potential human and ecological receptors since MEC at the ground surface would be removed in areas with frequent current or anticipated human activity, and LUCs would be implemented for risk management. MEC density across the site is considered medium to high based on the historic field activities and MEC finds. There is a residual risk of MEC surfacing through mechanisms such as erosion or storm surge in beach and/or shoreline areas. However, LUCs would further reduce and help prevent exposure of human receptors to MEC introduced on the surface by increasing awareness and discouraging contact. Furthermore, LUCs would educate potential human receptors of the possible hazards at the site. The environment would incur a relatively low level of disturbance as removal activities would be restricted to the surface in areas which have little to no vegetation. This alternative would comply with the applicable ARARs listed in Section 2.

9.3.2.2.2 Balancing Criteria

9.3.2.2.2.1. This alternative would be effective over the short- and long-term because it would remove MEC from the surface of select areas of the site frequented by the public, which limits the direct exposure pathway and educates the site users of the potential explosive hazards (educational programs/dig restrictions). There would be a slight increased short-term risk to workers associated with the surface removal activities. While subsurface MEC would potentially still be present, the use of LUCs would help reduce the potential interaction between human receptors and MEC. This alternative can be considered a permanent solution primarily because of the LUCs and associated LTM plan. As previously discussed, residual risk from MEC over the short and long-term can be managed by appropriate site management. As stated in the analysis of the LUC alternative, the reduction of toxicity, mobility, and volume is generally associated with MC. However, this alternative would essentially reduce the "volume" of MEC on the surface in areas frequented by human receptors. LUCs, with enforcement, would reduce the effective "toxicity" (potential of MEC to result in physical harm to receptors).

9.3.2.2.2.2. This alternative can be implemented relatively easily using conventional MEC surface removal and disposal techniques and equipment, and installation of LUCs. Implementation of this alternative would increase the amount of time and resources for the remedy when compared with the LUC alternative but are not substantial. Costs for the remedial action and LTM (30 years) are presented in Table 9-9. Data supporting the cost estimates are presented in Appendix K.

9.3.2.2.3 Modifying Criteria

This alternative may potentially gain regulatory or community acceptance as it would provide reasonable protection to potential human receptors through the surface removal of MEC in areas most often frequented by the public for recreational purposes and LUCs. Regulatory and community acceptance of alternatives will be further evaluated following the public comment period for the FS Report and during the PP.

9.3.2.3 Land Use Controls; 100 Percent Surface and Focused Subsurface Clearance

This alternative consists of conducting a surface clearance over the entire MRS (100 percent) and a focused subsurface clearance in frequented public use areas at the site (e.g., trails, dirt roads, picnic areas, camp grounds, shorelines) and implementation of the same LUCs outlined previously for this MRS. Based on the depth of MD and MEC found in the MRS and the anticipated recreational activities occurring at the site, subsurface clearances will be conducted to a depth of 12 inches in areas frequented by recreational users. Educational programs will be put in place to notify and educate people who use the area for recreational purposes. An assessment based on the NCP criteria is provided below. The summary of this alternative compared to the NCP criteria is presented in Table 9-2.

9.3.2.3.1 Threshold Criteria

This alternative meets the threshold criteria and would provide reasonable protection to potential human and ecological receptors since MEC at the ground surface would be removed from the entire MRS and MEC in the subsurface would be removed to a depth of 12 inches in areas with frequent current or anticipated human activity. LUCs would be implemented for risk management. There is a residual risk of MEC surfacing through mechanisms such as erosion or storm surge in shoreline areas. However, LUCs would further reduce and help prevent exposure of human receptors to MEC introduced on the surface by increasing awareness and discouraging contact. Furthermore, LUCs would educate potential human receptors of the possible hazards at the site. The environment would incur an extremely high level of disturbance as surface removal activities would require substantial brush and tree removal. In addition, subsurface removal activities would further disturb the environment during excavations. This alternative would comply with the applicable ARARs listed in Section 2.

9.3.2.3.2 Balancing Criteria

9.3.2.4.2.1. This alternative would be effective over the short- and long-term because it would remove MEC from the surface and subsurface at the site, which limits the direct exposure pathways to human and ecological receptors. There would be a slight increased short-term risk to workers associated with the clearance activities. This alternative can be considered a permanent solution because the extensive removal action would greatly reduce the risk associated with MEC as MEC would presumably be removed from the site to the greatest extent possible. As stated in the analysis of the LUC alternative, the reduction of toxicity, mobility, and volume is generally associated with MC. However, this alternative would essentially remove the “volume” of MEC on the surface and in the subsurface.

9.3.2.4.2.2. This alternative would be implemented with moderate difficulty using conventional MEC surface and subsurface removal and disposal techniques and equipment. Implementation of this alternative would require a substantial amount of time and resources. Costs for the remedial action and LTM (30 years) are presented in Table 9-9. Data supporting the cost estimates are presented in Appendix K.

9.3.2.3.3 Modifying Criteria

This alternative may potentially gain regulatory or community acceptance as it would provide reasonable protection to potential human receptors through the surface and subsurface removal of MEC throughout the entire site. Regulatory and community acceptance of alternatives will be further evaluated following the public comment period for the FS Report and during the PP.

9.3.3 Western Range Area D

9.3.3.1 No Action

The No Action alternative involves taking no action at Western Range Area D. Under this alternative, no further effort or resources would be expended. An analysis of the No Action alternative based on the NCP criteria is provided below. A summary of this alternative compared to the NCP criteria is presented in Table 9-3.

9.3.3.1.1 Threshold Criteria

The No Action alternative does not meet the threshold factor since no action would be taken to reduce the risk of potential receptor exposure to MEC and does not offer protection of human health and the environment. Since no actions would be taken, an assessment of ARARs is not appropriate. Additionally, this alternative does not meet RAOs for the MRS.

9.3.3.1.2 Balancing Criteria

The No Action alternative is not effective in the short or long-term because no actions would be taken to reduce potential contact with MEC nor does this alternative employ an action that will result in a permanent solution for the site. The “reduction of toxicity, mobility, and volume” generally refers to MC. However, the “volume” or potential hazards associated with MEC would not be reduced with the

No Action alternative since no action would be taken. This alternative is easily implementable as no actions would be taken and is also the lowest cost alternative since there would be no associated cost.

9.3.3.1.3 Modifying Criteria

The No Action alternative will most likely not gain regulatory or community acceptance as there would be no change to the risk of potential receptor exposure to MEC. Regulatory and community acceptance of the alternatives will be further evaluated following the public comment period for the FS and during the Proposed Plan (PP).

9.3.3.2 Land Use Controls; 100 Percent Surface Clearance

This alternative consists of conducting a surface clearance over the entire MRS (100 percent) in and implementation LUCs. LUCs would consist of restrictions placed on public property providing permanent notice of actual and/or potential hazards in the form of a deed notice, restrictive covenant and equivalent zoning or ordinance functionally equivalent to a deed notice. Educational programs will be put in place to notify and educate people who use the area for recreational purposes. An assessment based on the NCP criteria is provided below. The summary of this alternative compared to the NCP criteria is presented in Table 9-3.

9.3.3.2.1 Threshold Criteria

This alternative meets the threshold criteria and would provide reasonable protection to potential human and ecological receptors since MEC at the ground surface would be removed and LUCs would be implemented for risk management. MEC density across the site is considered medium to high based on the historic field activities and MEC finds. There is a residual risk of MEC surfacing through mechanisms such as erosion. However, LUCs would further reduce and help prevent exposure of human receptors to MEC introduced on the surface by increasing awareness and discouraging contact. Furthermore, LUCs would educate potential human receptors of the possible hazards at the site. The environment would incur an extremely high level of disturbance as surface removal activities would require that vegetation be cleared from large areas of the MRS. This alternative would comply with the applicable ARARs listed in Section 2.

9.3.3.2.2 Balancing Criteria

9.3.3.2.2.1. This alternative would be effective over the short- and long-term because it would remove MEC from the ground surface, which limits the direct exposure pathway, and educates the site users of the potential explosive hazards through the LUCs (signs/educational programs/dig restrictions). There would be a slight increased short-term risk to workers associated with the surface removal activities. While subsurface MEC would potentially still be present, the use of LUCs would help reduce the potential interaction between human receptors and MEC. This alternative can be considered a permanent solution primarily because of the LUCs and associated LTM plan. As previously discussed, residual risk from MEC over the short and long-term can be managed by appropriate site management. As stated in the analysis of the LUC alternative, the reduction of toxicity, mobility, and volume is generally associated with MC. However, this alternative would essentially reduce the “volume” of MEC on the ground surface. LUCs, with enforcement, would reduce the effective “toxicity” (potential of MEC to result in physical harm to receptors).

9.3.3.2.2.2. This alternative can be implemented relatively easily using conventional MEC surface removal and disposal techniques and equipment, and installation of LUCs. Implementation of this alternative would increase the amount of time and resources for the remedy substantially when compared with the LUC alternative due to the effort required to complete a surface removal over the entire MRS. Costs for the remedial action and LTM (30 years) are presented in Table 9-9. Data supporting the cost estimates are presented in Appendix K.

9.3.3.2.3 Modifying Criteria

This alternative may potentially gain regulatory or community acceptance as it would provide reasonable protection to potential human receptors through the surface removal of MEC in areas most often frequented by the public for recreational purposes and LUCs. Regulatory and community acceptance of alternatives will be further evaluated following the public comment period for the FS Report and during the PP.

9.3.3.3 Land Use Controls; Focused Surface and Subsurface Clearance

This alternative consists of conducting a focused surface clearance and subsurface clearance in frequented public use areas at the site (e.g., trails, dirt roads, picnic areas, camp grounds, shorelines) and implementation of the same LUCs outlined previously for this MRS. Based on the depth of MD and MEC found in the MRS and the anticipated recreational activities occurring at the site, surface clearances will be conducted to a depth of 12 inches in areas frequented by recreational users. Educational programs will also be put in place to notify and educate people who use the area for recreational purposes. An assessment based on the NCP criteria is provided below. The summary of this alternative compared to the NCP criteria is presented in Table 9-3.

9.3.3.3.1 Threshold Criteria

This alternative meets the threshold criteria and would provide reasonable protection to potential human and ecological receptors since MEC at the ground surface and in the subsurface to 12 inches would be removed in areas with frequent current or anticipated human activity, and LUCs would be implemented for risk management. There is a residual risk of MEC surfacing through mechanisms such as erosion. However, LUCs would further reduce and help prevent exposure of human receptors to MEC introduced on the surface by increasing awareness and discouraging contact. Furthermore, LUCs would educate potential human receptors of the possible hazards at the site. The environment would incur a moderate level of disturbance as removal activities would be restricted to the areas frequented by the public which typically have little to no vegetation. This alternative would comply with the applicable ARARs listed in Section 2.

9.3.3.3.2 Balancing Criteria

9.3.3.3.2.1. This alternative would be effective over the short- and long-term because it would remove MEC from the surface and in the top 12 inches of the subsurface in areas of the site frequented by the public, which limits the direct exposure pathway and educates the site users of the potential explosive hazards through LUCs (educational programs/dig restrictions). There would be a slight increased short-term risk to workers associated with the surface and subsurface clearance activities. While subsurface MEC would potentially still be present, the use of LUCs would help reduce the potential interaction between human receptors and MEC. This alternative can be considered a permanent solution primarily because of the LUCs and associated LTM plan. As previously discussed, residual risk from MEC over the short and long-term can be managed by appropriate site management. As stated in the analysis of the LUC alternative, the reduction of toxicity, mobility, and volume is generally associated with MC. However, this alternative would essentially reduce the "volume" of MEC on the surface in areas frequented by human receptors. LUCs, with enforcement, would reduce the effective "toxicity" (potential of MEC to result in physical harm to receptors).

9.3.3.3.2.2. This alternative can be implemented relatively easily using conventional MEC surface removal and disposal techniques and equipment, and installation of LUCs. Implementation of this alternative would require substantial time and resources for the remedy because if the increased clearance activities required for the surface and subsurface clearances. Costs for the remedial action and LTM (30 years) are presented in Table 9-9. Data supporting the cost estimates are presented in Appendix K.

9.3.3.3.3 Modifying Criteria

This alternative may potentially gain regulatory or community acceptance as it would provide reasonable protection to potential human receptors through the surface and subsurface removal of MEC in areas most often frequented by the public for recreational purposes and LUCs. Regulatory and community acceptance of alternatives will be further evaluated following the public comment period for the FS Report and during the PP.

9.3.3.4 Unlimited Use/Access (100 Percent Subsurface Clearance)

This alternative consists of conducting a surface and subsurface clearance over the entire site allowing unlimited use and access for the property. The subsurface clearance will be completed to a depth of 24 inches bgs to ensure the property is acceptable for unlimited use and access. An assessment based on the NCP criteria is provided below. The summary of this alternative compared to the NCP criteria is presented in Table 9-3.

9.3.3.4.1 Threshold Criteria

This alternative meets the threshold criteria and would provide reasonable protection to potential human and ecological receptors since MEC on the surface and in the subsurface would be removed across the entire site allowing unlimited use and access for the site. The environment would incur a relatively high level of disturbance as removal activities would be conducted over the entire site requiring substantial brush and tree removal and subsurface excavations. This alternative would comply with the applicable ARARs listed in Section 2.

9.3.3.4.2 Balancing Criteria

9.3.3.4.2.1. This alternative would be effective over the short- and long-term because it would remove MEC from the surface and subsurface at the site, which limits the direct exposure pathways to human and ecological receptors. There would be a slight increased short-term risk to workers associated with the clearance activities. This alternative can be considered a permanent solution because the extensive removal action would greatly reduce the risk associated with MEC as MEC would presumably be removed from the site to the greatest extent possible. As stated in the analysis of the LUC alternative, the reduction of toxicity, mobility, and volume is generally associated with MC. However, this alternative would essentially remove the “volume” of MEC on the surface and in the subsurface.

9.3.3.4.2.2. This alternative would be implemented with moderate difficulty using conventional MEC surface and subsurface removal and disposal techniques and equipment. Implementation of this alternative would require a substantial amount of time and resources. Costs for the remedial action and LTM (30 years) are presented in Table 9-9. Data supporting the cost estimates are presented in Appendix K.

9.3.3.4.3 Modifying Criteria

This alternative may potentially gain regulatory or community acceptance as it would provide reasonable protection to potential human receptors through the surface and subsurface removal of MEC throughout the entire site. Regulatory and community acceptance of alternatives will be further evaluated following the public comment period for the FS Report and during the PP.

9.3.4 Eastern Range Area A

9.3.4.1 No Action

The No Action alternative involves taking no action at Eastern Range Area A. Under this alternative, no further effort or resources would be expended. An analysis of the No Action alternative based on the NCP criteria is provided below. A summary of this alternative compared to the NCP criteria is presented in Table 9-4.

9.3.4.1.1 Threshold Criteria

The No Action alternative does not meet the threshold factor since no action would be taken to reduce the risk of potential receptor exposure to MEC and does not offer protection of human health and the environment. Since no actions would be taken, an assessment of ARARs is not appropriate. Additionally, this alternative does not meet RAOs for the MRS.

9.3.4.1.2 Balancing Criteria

The No Action alternative is not effective in the short or long-term because no actions would be taken to reduce potential contact with MEC nor does this alternative employ an action that will result in a permanent solution for the site. The “reduction of toxicity, mobility, and volume” generally refers to MC. However, the “volume” or potential hazards associated with MEC would not be reduced with the No Action alternative since no action would be taken. This alternative is easily implementable as no actions would be taken and is also the lowest cost alternative since there would be no associated cost.

9.3.4.1.3 Modifying Criteria

The No Action alternative will most likely not gain regulatory or community acceptance as there would be no change to the risk of potential receptor exposure to MEC. Regulatory and community acceptance of the alternatives will be further evaluated following the public comment period for the FS and during the PP.

9.3.4.2 Land Use Controls; 100 Percent Surface Clearance

This alternative consists of conducting a surface clearance over the entire MRS (100 percent) and the implementation of LUCs. LUCs would consist of restrictions placed on public property providing permanent notice of actual and/or potential hazards in the form of a deed notice, restrictive covenant and equivalent zoning or ordinance functionally equivalent to a deed notice. Educational programs will also be put in place to notify and educate people who use the area for recreational purposes. An assessment based on the NCP criteria is provided below. The summary of this alternative compared to the NCP criteria is presented in Table 9-4.

9.3.4.2.1 Threshold Criteria

This alternative meets the threshold criteria and would provide reasonable protection to potential human and ecological receptors since MEC at the ground surface would be removed and LUCs would be implemented for risk management. MEC density across the site is considered low to medium based on the historic field activities and MEC finds. There is a residual risk of MEC surfacing through mechanisms such as erosion or storm surge in beach and/or shoreline areas. However, LUCs would further reduce and help prevent exposure of human receptors to MEC introduced on the surface by increasing awareness and discouraging contact. Furthermore, LUCs would educate potential human receptors of the possible hazards at the site. The environment would incur an extremely high level of disturbance as surface removal activities would require that vegetation be cleared from large portions of the MRS. This alternative would comply with the applicable ARARs listed in Section 2.

9.3.4.2.2 Balancing Criteria

9.3.4.2.2.1. This alternative would be effective over the short- and long-term because it would remove MEC from the surface, which limits the direct exposure pathway, and educates the site users of the potential explosive hazards through LUCs (educational programs/dig restrictions). There would be a slight increased short-term risk to workers associated with the surface removal activities. While subsurface MEC would potentially still be present, the use of LUCs would help reduce the potential interaction between human receptors and MEC. This alternative can be considered a permanent solution primarily because of the LUCs and associated LTM plan. As previously discussed, residual risk from MEC over the short and long-term can be managed by appropriate site management. As stated in the analysis of the LUC alternative, the reduction of toxicity, mobility, and volume is generally associated with MC. However, this alternative would essentially reduce the “volume” of MEC on the surface in areas frequented by human receptors. LUCs, with enforcement, would reduce the effective “toxicity” (potential of MEC to result in physical harm to receptors).

9.3.4.2.2.2. This alternative can be implemented relatively easily using conventional MEC surface removal and disposal techniques and equipment, and installation of LUCs. Implementation of this alternative would substantially increase the amount of time and resources for the remedy when compared with the LUC alternative due the resources required to complete a surface removal over the entire MRS. Costs for the remedial action and LTM (30 years) are presented in Table 9-9. Data supporting the cost estimates are presented in Appendix K.

9.3.4.2.3 Modifying Criteria

This alternative may potentially gain regulatory or community acceptance as it would provide reasonable protection to potential human receptors through the surface removal of MEC in areas most often frequented by the public for recreational purposes and LUCs. Regulatory and community acceptance of alternatives will be further evaluated following the public comment period for the FS Report and during the PP.

9.3.4.3 Land Use Controls; Focused Surface and Subsurface Clearance

This alternative consists of conducting a focused surface clearance and subsurface clearance in frequented public use areas at the site (e.g., trails, dirt roads, picnic areas, camp grounds, beaches) and implementation of the same LUCs outlined previously for this MRS. Based on the depth of MD and MEC found in the MRS and the anticipated recreational activities occurring at the site, surface clearances will be conducted to a depth of 12 inches in areas frequented by recreational users outside of areas that can be confirmed to have been cleared in previous remedial actions. LUCs would consist of restrictions placed on public property providing permanent notice of actual and/or potential hazards in the form of a deed notice, restrictive covenant and equivalent zoning or ordinance functionally equivalent to a deed notice. Educational programs will also be put in place to notify and educate people who use the area for recreational purposes. An assessment based on the NCP criteria is provided below. The summary of this alternative compared to the NCP criteria is presented in Table 9-4.

9.3.4.3.1 Threshold Criteria

This alternative meets the threshold criteria and would provide reasonable protection to potential human and ecological receptors since MEC at the ground surface and in the subsurface to 12 inches would be removed in areas with frequent current or anticipated human activity, and LUCs would be implemented for risk management. There is a residual risk of MEC surfacing through mechanisms such as erosion or storm surge in beach and/or shoreline areas. However, LUCs would further reduce and help prevent exposure of human receptors to MEC introduced on the surface by increasing awareness and discouraging contact. Furthermore, LUCs would educate potential human receptors of the possible hazards at the site. The environment would incur a moderate level of disturbance as removal activities would be restricted to the areas frequented by the public which typically have little to no vegetation. This alternative would comply with the applicable ARARs listed in Section 2.

9.3.4.3.2 Balancing Criteria

9.3.4.3.2.1. This alternative would be effective over the short- and long-term because it would remove MEC from the surface and in the top 12 inches of the subsurface in areas of the site frequented by the public, which limits the direct exposure pathway and educates the site users of the potential explosive hazards through LUCs (educational programs/dig restrictions). There would be a slight increased short-term risk to workers associated with the surface and subsurface clearance activities. While subsurface MEC would potentially still be present, the use of LUCs would help reduce the potential interaction between human receptors and MEC. This alternative can be considered a permanent solution primarily because of the LUCs and associated LTM plan. As previously discussed, residual risk from MEC over the short and long-term can be managed by appropriate site management. As stated in the analysis of the LUC alternative, the reduction of toxicity, mobility, and volume is generally associated with MC. However, this alternative would essentially reduce the "volume" of MEC on the surface in areas frequented by human receptors. LUCs, with enforcement, would reduce the effective "toxicity" (potential of MEC to result in physical harm to receptors).

9.3.4.3.2.2. This alternative can be implemented relatively easily using conventional MEC surface removal and disposal techniques and equipment, and installation of LUCs. Implementation of this alternative would require substantial time and resources for the remedy because if the increased clearance activities required for the surface and subsurface clearances. Costs for the remedial action and LTM (30 years) are presented in Table 9-9. Data supporting the cost estimates are presented in Appendix K.

9.3.4.3.3 Modifying Criteria

This alternative may potentially gain regulatory or community acceptance as it would provide reasonable protection to potential human receptors through the surface and subsurface removal of MEC in areas most often frequented by the public for recreational purposes and LUCs. Regulatory and community acceptance of alternatives will be further evaluated following the public comment period for the FS Report and during the PP.

9.3.4.4 Unlimited Use/Access (100 Percent Subsurface Clearance)

This alternative consists of conducting a surface and subsurface clearance over the entire site allowing unlimited use and access for the property. The subsurface clearance will be completed to a depth of 12 inches bgs outside of areas that can be confirmed to have been cleared in previous remedial actions to ensure the property is acceptable for unlimited use and access. An assessment based on the NCP criteria is provided below. The summary of this alternative compared to the NCP criteria is presented in Table 9-4.

9.3.4.4.1 Threshold Criteria

This alternative meets the threshold criteria and would provide reasonable protection to potential human and ecological receptors since MEC on the surface and in the subsurface would be removed across the entire site allowing unlimited use and access for the site. The environment would incur a relatively high level of disturbance as removal activities would be conducted over the entire site requiring substantial brush and tree removal and subsurface excavations. This alternative would comply with the applicable ARARs listed in Section 2.

9.3.4.4.2 Balancing Criteria

9.3.4.4.2.1. This alternative would be effective over the short- and long-term because it would remove MEC from the surface and subsurface at the site, which limits the direct exposure pathways to human and ecological receptors. There would be a slight increased short-term risk to workers associated with the clearance activities. This alternative can be considered a permanent solution because the extensive removal action would greatly reduce the risk associated with MEC as MEC would presumably be removed from the site to the greatest extent possible. As stated in the analysis of the LUC alternative, the reduction of toxicity, mobility, and volume is generally associated with MC. However, this alternative would essentially remove the "volume" of MEC on the surface and in the subsurface.

9.3.4.4.2.2. This alternative would be implemented with moderate difficulty using conventional MEC surface and subsurface removal and disposal techniques and equipment. Implementation of this alternative would require a substantial amount of time and resources. Costs for the remedial action and LTM (30 years) are presented in Table 9-9. Data supporting the cost estimates are presented in Appendix K.

9.3.4.4.3 Modifying Criteria

This alternative may potentially gain regulatory or community acceptance as it would provide reasonable protection to potential human receptors through the surface and subsurface removal of MEC throughout the entire site. Regulatory and community acceptance of alternatives will be further evaluated following the public comment period for the FS Report and during the PP.

9.3.5 Eastern Range Area B

9.3.5.1 No Action

The No Action alternative involves taking no action at Eastern Range Area B. Under this alternative, no further effort or resources would be expended. An analysis of the No Action alternative based on the NCP criteria is provided below. A summary of this alternative compared to the NCP criteria is presented in Table 9-5.

9.3.5.1.1 Threshold Criteria

The No Action alternative does not meet the threshold factor since no action would be taken to reduce the risk of potential receptor exposure to MEC and does not offer protection of human health and the environment. Since no actions would be taken, an assessment of ARARs is not appropriate. Additionally, this alternative does not meet RAOs for the MRS.

9.3.5.1.2 Balancing Criteria

The No Action alternative is not effective in the short or long-term because no actions would be taken to reduce potential contact with MEC nor does this alternative employ an action that will result in a permanent solution for the site. The “reduction of toxicity, mobility, and volume” generally refers to MC. However, the “volume” or potential hazards associated with MEC would not be reduced with the No Action alternative since no action would be taken. This alternative is easily implementable as no actions would be taken and is also the lowest cost alternative since there would be no associated cost.

9.3.5.1.3 Modifying Criteria

The No Action alternative will most likely not gain regulatory or community acceptance as there would be no change to the risk of potential receptor exposure to MEC. Regulatory and community acceptance of the alternatives will be further evaluated following the public comment period for the FS and during the PP.

9.3.5.2 Land Use Controls; Focused Surface Clearance

This alternative consists of conducting a focused surface clearance in frequented public use areas at the site (e.g., trails, dirt roads, picnic areas, camp grounds, beaches). Surface clearances will be conducted in areas frequented by recreational users outside of areas that can be confirmed to have been cleared in previous remedial actions. LUCs would consist of restrictions placed on public property providing permanent notice of actual and/or potential hazards in the form of a deed notice, restrictive covenant and equivalent zoning or ordinance functionally equivalent to a deed notice. Educational programs will also be put in place to notify and educate people who use the area for recreational purposes. An assessment based on the NCP criteria is provided below. The summary of this alternative compared to the NCP criteria is presented in Table 9-5.

9.3.5.2.1 Threshold Criteria

This alternative meets the threshold criteria and would provide reasonable protection to potential human and ecological receptors since MEC at the ground surface would be removed in areas with frequent current or anticipated human activity, and LUCs would be implemented for risk management. MEC density across the site is considered medium to high based on the historic field activities and MEC finds. There is a residual risk of MEC surfacing through mechanisms such as erosion or storm surge in beach and/or shoreline areas. However, LUCs would further reduce and help prevent exposure of human receptors to MEC introduced on the surface by increasing awareness and discouraging contact. Furthermore, LUCs would educate potential human receptors of the possible hazards at the site. The environment would incur a relatively low level of disturbance as removal activities would be restricted to the surface in areas which have little to no vegetation. This alternative would comply with the applicable ARARs listed in Section 2.

9.3.5.2.2 Balancing Criteria

9.3.5.2.2.1. This alternative would be effective over the short- and long-term because it would remove MEC from the surface of select areas of the site frequented by the public, which limits the direct exposure pathway and educates the site users of the potential explosive hazards (educational programs/dig restrictions). There would be a slight increased short-term risk to workers associated with the surface removal activities. While subsurface MEC would potentially still be present, the use of LUCs would help reduce the potential interaction between human receptors and MEC. This alternative can be considered a permanent solution primarily because of the LUCs and associated LTM plan. As previously discussed, residual risk from MEC over the short and long-term can be managed by appropriate site management. As stated in the analysis of the LUC alternative, the reduction of toxicity, mobility, and volume is generally associated with MC. However, this alternative would essentially reduce the "volume" of MEC on the surface in areas frequented by human receptors. LUCs, with enforcement, would reduce the effective "toxicity" (potential of MEC to result in physical harm to receptors).

9.3.5.2.2.2. This alternative can be implemented relatively easily using conventional MEC surface removal and disposal techniques and equipment, and installation of LUCs. Implementation of this alternative would increase the amount of time and resources for the remedy when compared with the LUC alternative but are not substantial. Costs for the remedial action and LTM (30 years) are presented in Table 9-9. Data supporting the cost estimates are presented in Appendix K.

9.3.5.2.3 Modifying Criteria

This alternative may potentially gain regulatory or community acceptance as it would provide reasonable protection to potential human receptors through the surface removal of MEC in areas most often frequented by the public for recreational purposes and LUCs. Regulatory and community acceptance of alternatives will be further evaluated following the public comment period for the FS Report and during the PP.

9.3.5.3 Land Use Controls; 100 Percent Surface and Focused Subsurface Clearance

This alternative consists of conducting a surface clearance over the entire MRS (100 percent) and a focused subsurface clearance in frequented public use areas at the site (e.g., trails, dirt roads, picnic areas, camp grounds, beaches). The same LUCS previously outlined for the MRS would be implemented. Based on the depth of MD and MEC found in the MRS and the anticipated recreational activities occurring at the site, subsurface clearances will be conducted to a depth of 12 inches in areas frequented by recreational users outside of areas that can be confirmed to have been cleared in previous remedial actions. Educational programs will also be put in place to notify and educate people who use the area for recreational purposes. An assessment based on the NCP criteria is provided below. The summary of this alternative compared to the NCP criteria is presented in Table 9-5.

9.3.5.3.1 Threshold Criteria

This alternative meets the threshold criteria and would provide reasonable protection to potential human and ecological receptors since MEC at the ground surface would be removed over the entire MRS and MEC in the subsurface would be removed to a depth of 12 inches in areas with frequent current or anticipated human activity. LUCs would be implemented for risk management. There is a residual risk of MEC surfacing through mechanisms such as erosion or storm surge in beach and/or shoreline areas. However, LUCs would further reduce and help prevent exposure of human receptors to MEC introduced on the surface by increasing awareness and discouraging contact. Furthermore, LUCs would educate potential human receptors of the possible hazards at the site. The environment would incur an extremely high level of disturbance as surface removal activities would require substantial brush and tree removal. In addition, subsurface removal activities would further disturb the environment during excavations in the areas frequented by the public which typically have little to no vegetation. This alternative would comply with the applicable ARARs listed in Section 2.

9.3.5.3.2 Balancing Criteria

9.3.5.3.2.1. This alternative would be effective over the short- and long-term because it would remove MEC from the surface of the entire MRS and in the top 12 inches of the subsurface in areas of the site frequented by the public, which limits the direct exposure pathway and educates the site users of the potential explosive hazards through LUCs (educational programs/dig restrictions). There would be a slight increased short-term risk to workers associated with the surface and subsurface clearance activities. While subsurface MEC would potentially still be present, the use of LUCs would help reduce the potential interaction between human receptors and MEC. This alternative can be considered a permanent solution primarily because of the LUCs and associated LTM plan. As previously discussed, residual risk from MEC over the short and long-term can be managed by appropriate site management. As stated in the analysis of the LUC alternative, the reduction of toxicity, mobility, and volume is generally associated with MC. However, this alternative would essentially reduce the “volume” of MEC on the surface in areas frequented by human receptors. LUCs, with enforcement, would reduce the effective “toxicity” (potential of MEC to result in physical harm to receptors).

9.3.5.3.2.2. This alternative can be implemented relatively easily using conventional MEC surface removal and disposal techniques and equipment, and installation of LUCs. Implementation of this alternative would require substantial time and resources for the remedy because if the increased clearance activities required for the surface and subsurface clearances. Costs for the remedial action and LTM (30 years) are presented in Table 9-9. Data supporting the cost estimates are presented in Appendix K.

9.3.5.3.3 Modifying Criteria

This alternative may potentially gain regulatory or community acceptance as it would provide reasonable protection to potential human receptors through the surface and subsurface removal of MEC in areas most often frequented by the public for recreational purposes and LUCs. Regulatory and community acceptance of alternatives will be further evaluated following the public comment period for the FS Report and during the PP.

9.3.5.4 Unlimited Use/Access (100 Percent Subsurface Clearance)

This alternative consists of conducting a surface and subsurface clearance over the entire site allowing unlimited use and access for the property. The subsurface clearance will be completed to a depth of 12 inches bgs outside of areas that can be confirmed to have been cleared in previous remedial actions to ensure the property is acceptable for unlimited use and access. An assessment based on the NCP criteria is provided below. The summary of this alternative compared to the NCP criteria is presented in Table 9-5.

9.3.5.4.1 Threshold Criteria

This alternative meets the threshold criteria and would provide reasonable protection to potential human and ecological receptors since MEC on the surface and in the subsurface would be removed across the entire site allowing unlimited use and access for the site. The environment would incur a relatively high level of disturbance as removal activities would be conducted over the entire site requiring substantial brush and tree removal and subsurface excavations. This alternative would comply with the applicable ARARs listed in Section 2.

9.3.5.4.2 Balancing Criteria

9.3.5.4.2.1. This alternative would be effective over the short- and long-term because it would remove MEC from the surface and subsurface at the site, which limits the direct exposure pathways to human and ecological receptors. There would be a slight increased short-term risk to workers associated with the clearance activities. This alternative can be considered a permanent solution because the extensive removal action would greatly reduce the risk associated with MEC as MEC would presumably be removed from the site to the greatest extent possible. As stated in the analysis of the LUC alternative, the reduction of toxicity, mobility, and volume is generally associated with MC. However, this alternative would essentially remove the “volume” of MEC on the surface and in the subsurface.

9.3.5.4.2.2. This alternative would be implemented with moderate difficulty using conventional MEC surface and subsurface removal and disposal techniques and equipment. Implementation of this alternative would require a substantial amount of time and resources. Costs for the remedial action and

LTM (30 years) are presented in Table 9-9. Data supporting the cost estimates are presented in Appendix K.

9.3.5.4.3 Modifying Criteria

This alternative may potentially gain regulatory or community acceptance as it would provide reasonable protection to potential human receptors through the surface and subsurface removal of MEC throughout the entire site. Regulatory and community acceptance of alternatives will be further evaluated following the public comment period for the FS Report and during the PP.

9.3.6 Eastern Range Area C

9.3.6.1 No Action

The No Action alternative involves taking no action at Eastern Range Area C. Under this alternative, no further effort or resources would be expended. An analysis of the No Action alternative based on the NCP criteria is provided below. A summary of this alternative compared to the NCP criteria is presented in Table 9-6.

9.3.6.1.1 Threshold Criteria

The No Action alternative does not meet the threshold factor since no action would be taken to reduce the risk of potential receptor exposure to MEC and does not offer protection of human health and the environment. Since no actions would be taken, an assessment of ARARs is not appropriate. Additionally, this alternative does not meet RAOs for the MRS.

9.3.6.1.2 Balancing Criteria

The No Action alternative is not effective in the short or long-term because no actions would be taken to reduce potential contact with MEC nor does this alternative employ an action that will result in a permanent solution for the site. The “reduction of toxicity, mobility, and volume” generally refers to MC. However, the “volume” or potential hazards associated with MEC would not be reduced with the No Action alternative since no action would be taken. This alternative is easily implementable as no actions would be taken and is also the lowest cost alternative since there would be no associated cost.

9.3.6.1.3 Modifying Criteria

The No Action alternative will most likely not gain regulatory or community acceptance as there would be no change to the risk of potential receptor exposure to MEC. Regulatory and community acceptance of the alternatives will be further evaluated following the public comment period for the FS and during the PP.

9.3.6.2 Land Use Controls

The LUC alternative requires that signs be installed on and around the MRS and that an educational program be implemented to warn of the potential explosive hazards associated with the site. A LTM plan would be required to identify LUC enforcement actions, to inspect LUCs during the five-year review period and provide educational material on a periodic basis. In addition, the LTM plan will address the potential for MEC that may become exposed due to natural forces such as erosion along shorelines. An assessment based on the NCP criteria is provided below. The summary of the LUC alternative compared to the NCP criteria is presented in Table 9-6.

9.3.6.2.1 Threshold Criteria

The LUC alternative meets the threshold criteria and would provide for reasonable protection to potential human receptors based on the results of the RI field activities and future anticipated land use of the site. MEC density across the site is considered medium to high based on the historic field activities and MEC finds. The site is owned by USACE and the reasonably anticipated future land use remains unchanged from the current land use; no development is anticipated to occur at the site. Although this alternative would not remove any MEC from the site, this alternative will increase awareness of human receptors to the potential explosives hazards at the site and limit the potential for receptors to contact MEC in the subsurface where dig restrictions are in place. This alternative does not address ecological receptors; however, the risk to ecological receptors is considered low for MEC. The environment would incur a low level of disturbance since minimal activities would be required. This alternative would comply with the applicable ARARs listed in Section 2.

9.3.6.2.2 Balancing Criteria

9.3.6.2.2.1. The LUC alternative can be effective over the short- and long-term because it educates the site users of the potential explosive hazards (signs/educational programs) and limits the potential for receptors to encounter MEC in the subsurface by establishing dig restrictions on public property. The reduction of toxicity, mobility, and volume is generally associated with MC. However, if applied towards MEC, the LUC alternative would not reduce the “volume” of MEC but it would reduce the effective “toxicity” (potential of MEC to result in physical harm to receptors) by limiting exposure pathways through education and dig restrictions. Based on the nature of the hazard (explosive), residual MEC risk will remain on site regardless of which remedial alternatives are implemented. LUCs and a LTM plan are typically the best ways to manage residual risk from potential MEC (whether as stand alone or in part with other remedial alternatives).

9.3.6.2.2.2. The LUC alternative can be implemented relatively easily and cost effectively by installing signs on and around the site and by hosting education meetings with residents and by making educational material available for workers and visitors. Costs for the remedial action and LTM (30 years) are presented in Tables 9-9. Data supporting the cost estimates are presented in Appendix K. Overall, the LUC alternative is a relatively low cost, easily implementable alternative.

9.3.6.2.3 Modifying Criteria

The LUC alternative may potentially gain regulatory or community acceptance as it would provide notification to potential human receptors (trespassers) through LUCs. However, this alternative does not remove any MEC, which may be unacceptable. Regulatory and community acceptance of the alternatives will be further evaluated following the public comment period for the FS Report and during the PP.

9.3.6.3 Land Use Controls; Focused Surface Clearance

This alternative consists of conducting a focused surface clearance in frequented public use areas at the site (e.g., trails, dirt roads, picnic areas, camp grounds, shorelines) and implementation of the same LUCs outlined in the LUC alternative except no signage. Surface clearances will be conducted in areas frequented by recreational users where subsurface activities are not anticipated. Educational programs will be put in place to notify and educate people who use the area for recreational purposes. An assessment based on the NCP criteria is provided below. The summary of this alternative compared to the NCP criteria is presented in Table 9-6.

9.3.6.3.1 Threshold Criteria

This alternative meets the threshold criteria and would provide reasonable protection to potential human and ecological receptors since MEC at the ground surface would be removed in areas with frequent current or anticipated human activity, and LUCs would be implemented for risk management. There is a residual risk of MEC surfacing through mechanisms such as erosion or storm surge in beach and/or shoreline areas. However, LUCs would further reduce and help prevent exposure of human receptors to MEC introduced on the surface by increasing awareness and discouraging contact. Furthermore, LUCs would educate potential human receptors of the possible hazards at the site. The environment would incur a relatively low level of disturbance as removal activities would be restricted to the surface in areas, which have little to no vegetation. This alternative would comply with the applicable ARARs listed in Section 2.

9.3.6.3.2 Balancing Criteria

9.3.6.3.2.1. This alternative would be effective over the short- and long-term because it would remove MEC from the surface of select areas of the site frequented by the public, which limits the direct exposure pathway and educates the site users of the potential explosive hazards (educational programs/dig restrictions). There would be a slight increased short-term risk to workers associated with the surface removal activities. While subsurface MEC would potentially still be present, the use of LUCs would help reduce the potential interaction between human receptors and MEC. This alternative can be considered a permanent solution primarily because of the LUCs and associated LTM plan. As previously discussed, residual risk from MEC over the short and long-term can be managed by appropriate site management. As stated in the analysis of the LUC alternative, the reduction of toxicity, mobility, and volume is generally associated with MC. However, this alternative would essentially reduce the “volume” of MEC on the surface in areas frequented by human receptors. LUCs, with enforcement, would reduce the effective “toxicity” (potential of MEC to result in physical harm to receptors).

9.3.6.3.2.2. This alternative can be implemented relatively easily using conventional MEC surface removal and disposal techniques and equipment, and installation of LUCs. Implementation of this alternative would increase the amount of time and resources for the remedy when compared with the LUC alternative. Costs for the remedial action and LTM (30 years) are presented in Table 9-9. Data supporting the cost estimates are presented in Appendix K.

9.3.6.3.3 Modifying Criteria

This alternative may potentially gain regulatory or community acceptance as it would provide reasonable protection to potential human receptors through the surface removal of MEC in areas most often frequented by the public for recreational purposes and LUCs. Regulatory and community acceptance of alternatives will be further evaluated following the public comment period for the FS Report and during the PP.

9.3.6.4 Land Use Controls; 100 Percent Surface Clearance

This alternative consists of conducting a surface clearance over the entire MRS (100 percent) and implementation of the same LUCs outlined in the LUC alternative except no signage. Educational programs will be put in place to notify and educate people who use the area for recreational purposes. An assessment based on the NCP criteria is provided below. The summary of this alternative compared to the NCP criteria is presented in Table 9-6.

9.3.6.4.1 Threshold Criteria

This alternative meets the threshold criteria and would provide reasonable protection to potential human and ecological receptors since MEC at the ground surface would be removed and LUCs would be implemented for risk management. There is a residual risk of MEC surfacing through mechanisms such as erosion or storm surge in beach and/or shoreline areas. However, LUCs would further reduce and help prevent exposure of human receptors to MEC introduced on the surface by increasing awareness and discouraging contact. Furthermore, LUCs would educate potential human receptors of the possible hazards at the site. The environment would incur an extremely high level of disturbance as surface removal activities would require that vegetation be cleared over large portions of the MRS. This alternative would comply with the applicable ARARs listed in Section 2.

9.3.6.4.2 Balancing Criteria

9.3.6.3.2.3. This alternative would be effective over the short- and long-term because it would remove MEC from the ground surface, which limits the direct exposure pathway, and educates the site users of the potential explosive hazards (educational programs/dig restrictions). There would be a slight increased short-term risk to workers associated with the surface removal activities. While subsurface MEC would potentially still be present, the use of LUCs would help reduce the potential interaction between human receptors and MEC. This alternative can be considered a permanent solution primarily because of the LUCs and associated LTM plan. As previously discussed, residual risk from MEC over the short and long-term can be managed by appropriate site management. As stated in the analysis of the LUC alternative, the reduction of toxicity, mobility, and volume is generally associated with MC. However, this alternative would essentially reduce the "volume" of MEC on the surface in areas frequented by human receptors. LUCs, with enforcement, would reduce the effective "toxicity" (potential of MEC to result in physical harm to receptors).

9.3.6.3.2.4. This alternative can be implemented relatively easily using conventional MEC surface removal and disposal techniques and equipment, and installation of LUCs. Implementation of this alternative would increase the amount of time and resources for the remedy when compared with previously discussed alternatives due to the resources required to complete a surface removal over the entire MRS. Costs for the remedial action and LTM (30 years) are presented in Table 9-9. Data supporting the cost estimates are presented in Appendix K.

9.3.6.4.3 Modifying Criteria

This alternative may potentially gain regulatory or community acceptance as it would provide reasonable protection to potential human receptors through the surface removal of MEC in areas most often frequented by the public for recreational purposes and LUCs. Regulatory and community acceptance of alternatives will be further evaluated following the public comment period for the FS Report and during the PP.

9.3.6.5 Unlimited Use/Access (100 Percent Subsurface Clearance)

This alternative consists of conducting a surface and subsurface clearance over the entire site allowing unlimited use and access for the property. The subsurface clearance will be completed to a depth of 12 inches bgs to ensure the property is acceptable for unlimited use and access. An assessment based on the NCP criteria is provided below. The summary of this alternative compared to the NCP criteria is presented in Table 9-6.

9.3.6.5.1 Threshold Criteria

This alternative meets the threshold criteria and would provide reasonable protection to potential human and ecological receptors since MEC on the surface and in the subsurface would be removed across the entire site allowing unlimited use and access for the site. The environment would incur a relatively high level of disturbance as removal activities would be conducted over the entire site requiring substantial brush and tree removal and subsurface excavations. This alternative would comply with the applicable ARARs listed in Section 2.

9.3.6.5.2 Balancing Criteria

9.3.6.4.2.1. This alternative would be effective over the short- and long-term because it would remove MEC from the surface and subsurface at the site, which limits the direct exposure pathways to human and ecological receptors. There would be a slight increased short-term risk to workers associated with the clearance activities. This alternative can be considered a permanent solution because the extensive removal action would greatly reduce the risk associated with MEC as MEC would presumably be removed from the site to the greatest extent possible. As stated in the analysis of the LUC alternative, the reduction of toxicity, mobility, and volume is generally associated with MC. However, this alternative would essentially remove the “volume” of MEC on the surface and in the subsurface.

9.3.6.4.2.2. This alternative would be implemented with moderate difficulty using conventional MEC surface and subsurface removal and disposal techniques and equipment. Implementation of this alternative would require a substantial amount of time and resources. Costs for the remedial action and LTM (30 years) are presented in Table 9-9. Data supporting the cost estimates are presented in Appendix K.

9.3.6.5.3 Modifying Criteria

This alternative may potentially gain regulatory or community acceptance as it would provide reasonable protection to potential human receptors through the surface and subsurface removal of MEC throughout the entire site. Regulatory and community acceptance of alternatives will be further evaluated following the public comment period for the FS Report and during the PP.

9.3.7 Grenade Range Area

9.3.7.1 No Action

The No Action alternative involves taking no action at Grenade Range Area. Under this alternative, no further effort or resources would be expended. An analysis of the No Action alternative based on the

NCP criteria is provided below. A summary of this alternative compared to the NCP criteria is presented in Table 9-7.

9.3.7.1.1 Threshold Criteria

The No Action alternative does not meet the threshold factor since no action would be taken to reduce the risk of potential receptor exposure to MEC and does not offer protection of human health and the environment. Since no actions would be taken, an assessment of ARARs is not appropriate. Additionally, this alternative does not meet RAOs for the MRS.

9.3.7.1.2 Balancing Criteria

The No Action alternative is not effective in the short or long-term because no actions would be taken to reduce potential contact with MEC nor does this alternative employ an action that will result in a permanent solution for the site. The "reduction of toxicity, mobility, and volume" generally refers to MC. However, the "volume" or potential hazards associated with MEC would not be reduced with the No Action alternative since no action would be taken. This alternative is easily implementable as no actions would be taken and is also the lowest cost alternative since there would be no associated cost.

9.3.7.1.3 Modifying Criteria

The No Action alternative will most likely not gain regulatory or community acceptance as there would be no change to the risk of potential receptor exposure to MEC. Regulatory and community acceptance of the alternatives will be further evaluated following the public comment period for the FS and during the PP.

9.3.7.2 Land Use Controls

The LUC alternative requires that signs be installed on and around the MRS and that an educational program be implemented to warn of the potential explosive hazards associated with the site. A LTM plan would be required to identify LUC enforcement actions, to inspect LUCs during the five-year review period and provide educational material on a periodic basis. In addition, the LTM plan will address the potential for MEC that may become exposed due to natural forces such as erosion. An assessment based on the NCP criteria is provided below. The summary of the LUC alternative compared to the NCP criteria is presented in Table 9-7.

9.3.7.2.1 Threshold Criteria

The LUC alternative meets the threshold criteria and would provide for reasonable protection to potential human receptors based on the results of the RI field activities and future anticipated land use of the site. MEC density across the site is considered medium to high based on the historic field activities and MEC finds. The site is owned by USACE and the reasonably anticipated future land use remains unchanged from the current land use; no development is anticipated to occur at the site. Although this alternative would not remove any MEC from the site, this alternative will increase awareness of human receptors to the potential explosives hazards at the site and limit the potential for receptors to contact MEC in the subsurface where dig restrictions are in place. This alternative does not address ecological receptors; however, the risk to ecological receptors is considered low for MEC. The environment would incur a low level of disturbance since minimal activities would be required. This alternative would comply with the applicable ARARs listed in Section 2.

9.3.7.2.2 Balancing Criteria

9.3.7.2.2.1. The LUC alternative can be effective over the short- and long-term because it educates the site users of the potential explosive hazards (signs/educational programs) and limits the potential for receptors to encounter MEC in the subsurface by establishing dig restrictions on public property. The reduction of toxicity, mobility, and volume is generally associated with MC. However, if applied towards MEC, the LUC alternative would not reduce the "volume" of MEC but it would reduce the effective "toxicity" (potential of MEC to result in physical harm to receptors) by limiting exposure pathways through education and dig restrictions. Based on the nature of the hazard (explosive), residual MEC risk will remain on site regardless of which remedial alternatives are implemented. LUCs and a LTM plan are typically the best ways to manage residual risk from potential MEC (whether as stand alone or in part with other remedial alternatives).

9.3.7.2.2.2. The LUC alternative can be implemented relatively easily and cost effectively by installing signs on and around the site and by hosting education meetings with residents and by making educational material available for workers and visitors. Costs for the remedial action and LTM (30 years) are presented in Tables 9-9. Data supporting the cost estimates are presented in Appendix K. Overall, the LUC alternative is a relatively low cost, easily implementable alternative.

9.3.7.2.3 Modifying Criteria

The LUC alternative may potentially gain regulatory or community acceptance as it would provide notification to potential human receptors (trespassers) through LUCs. However, this alternative does not remove any MEC which may be unacceptable. Regulatory and community acceptance of the alternatives will be further evaluated following the public comment period for the FS Report and during the PP.

9.3.7.3 Land Use Controls; Focused Surface Clearance

This alternative consists of conducting a focused surface clearance in frequented public use areas at the site (e.g., trails, dirt roads) and implementation of the same LUCs outlined in the LUC alternative except signage. Surface clearances will be conducted in areas frequented by recreational users where subsurface activities are not anticipated. Educational programs will also be put in place to notify and educate people who use the area for recreational purposes. An assessment based on the NCP criteria is provided below. The summary of this alternative compared to the NCP criteria is presented in Table 9-7.

9.3.7.3.1 Threshold Criteria

This alternative meets the threshold criteria and would provide reasonable protection to potential human and ecological receptors since MEC at the ground surface would be removed in areas with frequent current or anticipated human activity, and LUCs would be implemented for risk management. There is a residual risk of MEC surfacing through mechanisms such as erosion or storm surge in beach and/or shoreline areas. However, LUCs would further reduce and help prevent exposure of human receptors to MEC introduced on the surface by increasing awareness and discouraging contact. Furthermore, LUCs would educate potential human receptors of the possible hazards at the site. The environment would incur a relatively low level of disturbance as removal activities would be restricted to the surface in areas which have little to no vegetation. This alternative would comply with the applicable ARARs listed in Section 2.

9.3.7.3.2 Balancing Criteria

9.3.7.3.2.1. This alternative would be effective over the short- and long-term because it would remove MEC from the surface of select areas of the site frequented by the public, which limits the direct exposure pathway and educates the site users of the potential explosive hazards (educational programs/dig restrictions). There would be a slight increased short-term risk to workers associated with the surface removal activities. While subsurface MEC would potentially still be present, the use of LUCs would help reduce the potential interaction between human receptors and MEC. This alternative can be considered a permanent solution primarily because of the LUCs and associated LTM plan. As previously discussed, residual risk from MEC over the short and long-term can be managed by appropriate site management. As stated in the analysis of the LUC alternative, the reduction of toxicity, mobility, and volume is generally associated with MC. However, this alternative would essentially reduce the "volume" of MEC on the surface in areas frequented by human receptors. LUCs, with enforcement, would reduce the effective "toxicity" (potential of MEC to result in physical harm to receptors).

9.3.7.3.2.2. This alternative can be implemented relatively easily using conventional MEC surface removal and disposal techniques and equipment, and installation of LUCs. Implementation of this alternative would increase the amount of time and resources for the remedy when compared with the LUC alternative. Costs for the remedial action and LTM (30 years) are presented in Table 9-9. Data supporting the cost estimates are presented in Appendix K.

9.3.7.3.3 Modifying Criteria

This alternative may potentially gain regulatory or community acceptance as it would provide reasonable protection to potential human receptors through the surface removal of MEC in areas most often frequented by the public for recreational purposes and LUCs. Regulatory and community acceptance of alternatives will be further evaluated following the public comment period for the FS Report and during the PP.

9.3.7.4 Land Use Controls; 100 Percent Surface Clearance

This alternative consists of conducting a surface clearance over the entire MRS (100 percent) and implementation of the same LUCs outlined in the LUC alternative except no signage. Educational programs will be put in place to notify and educate people who use the area for recreational purposes. An assessment based on the NCP criteria is provided below. The summary of this alternative compared to the NCP criteria is presented in Table 9-6.

9.3.7.4.1 Threshold Criteria

This alternative meets the threshold criteria and would provide reasonable protection to potential human and ecological receptors since MEC at the ground surface would be removed and LUCs would be implemented for risk management. There is a residual risk of MEC surfacing through mechanisms such as erosion or storm surge in beach and/or shoreline areas. However, LUCs would further reduce and help prevent exposure of human receptors to MEC introduced on the surface by increasing awareness and discouraging contact. Furthermore, LUCs would educate potential human receptors of the possible hazards at the site. The environment would incur an extremely high level of disturbance as surface removal activities would require that vegetation be cleared over large portions of the MRS. This alternative would comply with the applicable ARARs listed in Section 2.

9.3.7.4.2 Balancing Criteria

9.3.6.3.2.5. This alternative would be effective over the short- and long-term because it would remove MEC from the ground surface, which limits the direct exposure pathway, and educates the site users of the potential explosive hazards (educational programs/dig restrictions). There would be a slight increased short-term risk to workers associated with the surface removal activities. While subsurface MEC would potentially still be present, the use of LUCs would help reduce the potential interaction between human receptors and MEC. This alternative can be considered a permanent solution primarily because of the LUCs and associated LTM plan. As previously discussed, residual risk from MEC over the short and long-term can be managed by appropriate site management. As stated in the analysis of the LUC alternative, the reduction of toxicity, mobility, and volume is generally associated with MC. However, this alternative would essentially reduce the “volume” of MEC on the surface in areas frequented by human receptors. LUCs, with enforcement, would reduce the effective “toxicity” (potential of MEC to result in physical harm to receptors).

9.3.6.3.2.6. This alternative can be implemented relatively easily using conventional MEC surface removal and disposal techniques and equipment, and installation of LUCs. Implementation of this alternative would increase the amount of time and resources for the remedy when compared with previously discussed alternatives due to the resources required to complete a surface removal over the entire MRS. Costs for the remedial action and LTM (30 years) are presented in Table 9-9. Data supporting the cost estimates are presented in Appendix K.

9.3.7.4.3 Modifying Criteria

This alternative may potentially gain regulatory or community acceptance as it would provide reasonable protection to potential human receptors through the surface removal of MEC in areas most often frequented by the public for recreational purposes and LUCs. Regulatory and community acceptance of alternatives will be further evaluated following the public comment period for the FS Report and during the PP.

9.3.7.5 Unlimited Use/Access (100 Percent Subsurface Clearance)

This alternative consists of conducting a surface and subsurface clearance over the entire site allowing unlimited use and access for the property. The subsurface clearance will be completed to a depth of 12 inches bgs to ensure the property is acceptable for unlimited use and access. An assessment based on the NCP criteria is provided below. The summary of this alternative compared to the NCP criteria is presented in Table 9-7.

9.3.7.5.1 Threshold Criteria

This alternative meets the threshold criteria and would provide reasonable protection to potential human and ecological receptors since MEC on the surface and in the subsurface would be removed across the entire site allowing unlimited use and access for the site. The environment would incur a relatively high level of disturbance as removal activities would be conducted over the entire site requiring substantial brush and tree removal and subsurface excavations. This alternative would comply with the applicable ARARs listed in Section 2.

9.3.7.5.2 Balancing Criteria

9.3.7.4.2.1. This alternative would be effective over the short- and long-term because it would remove MEC from the surface and subsurface at the site, which limits the direct exposure pathways to human and ecological receptors. There would be a slight increased short-term risk to workers associated with the clearance activities. This alternative can be considered a permanent solution because the extensive removal action would greatly reduce the risk associated with MEC as MEC would presumably be removed from the site to the greatest extent possible. As stated in the analysis of the LUC alternative, the reduction of toxicity, mobility, and volume is generally associated with MC. However, this alternative would essentially remove the “volume” of MEC on the surface and in the subsurface.

9.3.7.4.2.2. This alternative would be implemented with moderate difficulty using conventional MEC surface and subsurface removal and disposal techniques and equipment. Implementation of this alternative would require a substantial amount of time and resources. Costs for the remedial action and LTM (30 years) are presented in Table 9-9. Data supporting the cost estimates are presented in Appendix K.

9.3.7.5.3 Modifying Criteria

This alternative may potentially gain regulatory or community acceptance as it would provide reasonable protection to potential human receptors through the surface and subsurface removal of MEC throughout the entire site. Regulatory and community acceptance of alternatives will be further evaluated following the public comment period for the FS Report and during the PP.

9.3.8 Mine and Booby Trap Area

9.3.8.1 No Action

The No Action alternative involves taking no action at the Mine and Booby Trap Area. Under this alternative, no further effort or resources would be expended. An analysis of the No Action alternative based on the NCP criteria is provided below. A summary of this alternative compared to the NCP criteria is presented in Table 9-8.

9.3.8.1.1 Threshold Criteria

The No Action alternative does not meet the threshold factor since no action would be taken to reduce the risk of potential receptor exposure to MEC and does not offer protection of human health and the environment. Since no actions would be taken, an assessment of ARARs is not appropriate. Additionally, this alternative does not meet RAOs for the MRS.

9.3.8.1.2 Balancing Criteria

The No Action alternative is not effective in the short or long-term because no actions would be taken to reduce potential contact with MEC nor does this alternative employ an action that will result in a permanent solution for the site. The “reduction of toxicity, mobility, and volume” generally refers to MC. However, the “volume” or potential hazards associated with MEC would not be reduced with the

No Action alternative since no action would be taken. This alternative is easily implementable as no actions would be taken and is also the lowest cost alternative since there would be no associated cost.

9.3.8.1.3 Modifying Criteria

The No Action alternative will most likely not gain regulatory or community acceptance as there would be no change to the risk of potential receptor exposure to MEC. Regulatory and community acceptance of the alternatives will be further evaluated following the public comment period for the FS and during the PP.

9.3.8.2 Land Use Controls

The LUC alternative requires that signs be installed on and around the MRS and that an educational program be implemented to warn of the potential explosive hazards associated with the site. A LTM plan would be required to identify LUC enforcement actions, to inspect LUCs during the five-year review period and provide educational material on a periodic basis. In addition, the LTM plan will address the potential for MEC that may become exposed due to natural forces such as erosion. An assessment based on the NCP criteria is provided below. The summary of the LUC alternative compared to the NCP criteria is presented in Table 9-8.

9.3.8.2.1 Threshold Criteria

The LUC alternative meets the threshold criteria and would provide for reasonable protection to potential human receptors based on the results of the RI field activities and future anticipated land use of the site. MEC density across the site is considered low to medium based on the historic field activities and MEC finds. The site is privately owned and the reasonably anticipated future land use remains unchanged from the current land use as a residential property. Although this alternative would not remove any MEC from the site, this alternative will increase awareness of human receptors to the potential explosives hazards at the site and limit the potential for receptors to contact MEC in the subsurface where dig restrictions are in place. This alternative does not address ecological receptors; however, the risk to ecological receptors is considered low for MEC. The environment would incur a low level of disturbance since minimal activities would be required. This alternative would comply with the applicable ARARs listed in Section 2.

9.3.8.2.2 Balancing Criteria

9.3.8.2.2.1. The LUC alternative can be effective over the short- and long-term because it educates the site users of the potential explosive hazards (signs/educational programs) and limits the potential for receptors to encounter MEC in the subsurface by establishing dig restrictions on public property. The reduction of toxicity, mobility, and volume is generally associated with MC. However, if applied towards MEC, the LUC alternative would not reduce the “volume” of MEC but it would reduce the effective “toxicity” (potential of MEC to result in physical harm to receptors) by limiting exposure pathways through education and dig restrictions. Based on the nature of the hazard (explosive), residual MEC risk will remain on site regardless of which remedial alternatives are implemented. LUCs and a LTM plan are typically the best ways to manage residual risk from potential MEC (whether as stand-alone or in part with other remedial alternatives).

9.3.8.2.2.2. The site is located on private property; therefore, the LUC alternative can be implemented relatively easily if property owners are cooperative. If property owners do not wish participate in the remedial action, the implementability of LUCs would become increasingly more difficult or even impossible. ROEs were granted for portions of the MRS for RI field work; therefore, implementation of LUCs may be practical at these parcels within the MRS compared to private parcels where no ROEs have previously been granted. The alternative is cost effective and involves the installation of signs on and around the site, educational meetings with residents, and making educational material available. Costs for the remedial action and LTM (30 years) are presented in Tables 9-9. Data supporting the cost estimates are presented in Appendix K. Overall, the LUC alternative is a relatively low cost, easily implementable alternative.

9.3.8.2.3 Modifying Criteria

The LUC alternative may potentially gain regulatory or community acceptance as it would provide notification to potential human receptors (trespassers) through LUCs. However, this alternative does not remove any MEC which may be unacceptable. Regulatory and community acceptance of the alternatives will be further evaluated following the public comment period for the FS Report and during the PP.

9.3.8.3 Land Use Controls; 100 Percent Surface and Subsurface Clearance to Six Inches

This alternative consists of conducting a surface and subsurface clearance over the entire site and implementation of the same LUCs outlined previously except for signage. Based on the depth of MD and MEC found in the MRS and the anticipated recreational activities occurring at the site, the surface clearance will be conducted to a depth of six inches. Educational programs will also be put in place to notify and educate residents, visitors, and trespassers. An assessment based on the NCP criteria is provided below. The summary of this alternative compared to the NCP criteria is presented in Table 9-8.

9.3.8.3.1 Threshold Criteria

This alternative meets the threshold criteria and would provide reasonable protection to potential human and ecological receptors since MEC at the ground surface and in the subsurface to six inches would be removed, and LUCs would be implemented for risk management. There is a residual risk of MEC surfacing through mechanisms such as erosion. However, LUCs would further reduce and help prevent exposure of human receptors to MEC introduced on the surface by increasing awareness and discouraging contact. Furthermore, LUCs would educate potential human receptors of the possible hazards at the site. The environment would incur a relatively high level of disturbance as removal activities would be conducted over the entire site requiring substantial brush and tree removal and subsurface excavations. Vegetation disturbance would potentially be less than in surrounding areas because much of the property is residential and has less vegetation that would be cleared. This alternative would comply with the applicable ARARs listed in Section 2.

9.3.8.3.2 Balancing Criteria

9.3.8.3.2.1. This alternative would be effective over the short- and long-term because it would remove MEC from the surface and in the top six inches of the subsurface and educates the site users of the potential explosive hazards through LUCs (educational programs/dig restrictions). There would be a slight increased short-term risk to workers associated with the surface and subsurface clearance activities. While subsurface MEC would potentially still be present, the use of LUCs would help reduce the potential interaction between human receptors and MEC. This alternative can be considered a permanent solution primarily because of the LUCs and associated LTM plan. As previously discussed, residual risk from MEC over the short and long-term can be managed by appropriate site management. As stated in the analysis of the LUC alternative, the reduction of toxicity, mobility, and volume is generally associated with MC. However, this alternative would essentially reduce the "volume" of MEC on the surface in areas frequented by human receptors. LUCs, with enforcement, would reduce the effective "toxicity" (potential of MEC to result in physical harm to receptors).

9.3.8.3.2.2. This alternative can be implemented relatively easily using conventional MEC surface removal and disposal techniques and equipment, and installation of LUCs. Implementation of this alternative would require substantial time and resources for the remedy because if the increased clearance activities required for the surface and subsurface clearances. In addition, the cooperation of the property owns would be paramount to determining whether the alternative is implementable. Costs for the remedial action and LTM (30 years) are presented in Table 9-9. Data supporting the cost estimates are presented in Appendix K.

9.3.8.3.3 Modifying Criteria

This alternative may potentially gain regulatory or community acceptance as it would provide reasonable protection to potential human receptors through the surface and subsurface removal of MEC in areas most often frequented by the public for recreational purposes and LUCs. Regulatory and community acceptance of alternatives will be further evaluated following the public comment period for the FS Report and during the PP.

9.3.8.4 Unlimited Use/Access (100 Percent Subsurface Clearance)

This alternative consists of conducting a surface and subsurface clearance over the entire site allowing unlimited use and access for the property. The subsurface clearance will be completed to a depth of 12 inches bgs to ensure the property is acceptable for unlimited use and access. An assessment based on the NCP criteria is provided below. The summary of this alternative compared to the NCP criteria is presented in Table 9-8.

9.3.8.4.1 Threshold Criteria

This alternative meets the threshold criteria and would provide reasonable protection to potential human and ecological receptors since MEC on the surface and in the subsurface would be removed across the entire site allowing unlimited use and access for the site. The environment would incur a relatively high level of disturbance as removal activities would be conducted over the entire site requiring substantial brush and tree removal and subsurface excavations. This alternative would comply with the applicable ARARs listed in Section 2.

9.3.8.4.2 Balancing Criteria

9.3.8.4.2.1. This alternative would be effective over the short- and long-term because it would remove MEC from the surface and subsurface at the site, which limits the direct exposure pathways to human and ecological receptors. There would be a slight increased short-term risk to workers associated with the clearance activities. This alternative can be considered a permanent solution because the extensive removal action would greatly reduce the risk associated with MEC as MEC would presumably be removed from the site to the greatest extent possible. As stated in the analysis of the LUC alternative, the reduction of toxicity, mobility, and volume is generally associated with MC. However, this alternative would essentially remove the "volume" of MEC on the surface and in the subsurface.

9.3.8.4.2.2. This alternative would be implemented with moderate difficulty using conventional MEC surface and subsurface removal and disposal techniques and equipment. Implementation of this alternative would require a substantial amount of time and resources. Costs for the remedial action and LTM (30 years) are presented in Table 9-9. Data supporting the cost estimates are presented in Appendix K.

9.3.8.4.3 Modifying Criteria

This alternative may potentially gain regulatory or community acceptance as it would provide reasonable protection to potential human receptors through the surface and subsurface removal of MEC throughout the entire site. Regulatory and community acceptance of alternatives will be further evaluated following the public comment period for the FS Report and during the PP.

Table 9-1: NCP Criteria for Western Range Area B

Criteria		Alternative 1: No Action
Threshold Criteria	Overall Protection of Human Health and the Environment	Not protective of human health or the environment because it does not mitigate the potential risk associated with the potential presence of MEC
	Compliance with ARARs	No action, thus, ARARs not applicable.
Primary Balancing Criteria	Short-term Effectiveness	Does not meet short-term effectiveness requirements (does not remove MEC)
	Long-term Effectiveness	Does not meet long-term effectiveness requirements (does not remove MEC)
	Reduction of Toxicity, Mobility, Volume	Does not reduce toxicity, mobility, or volume because no remediation takes place.
	Implementability	Highly implementable because no remedial action.
	Cost Estimate (Net Present Value [NPV])	No cost is associated with this alternative because no action would be taken.
Modifying Criteria	Regulatory and Community Acceptance	Will not satisfy either the regulatory community or the public as there would be no actions taken.
Criteria		**Alternative 2: LUCs**
Threshold Criteria	Overall Protection of Human Health and the Environment	Reduces the potential impact to human health through education of risks and limitation of access to potential human receptors.
	Compliance with ARARs	Would comply with the applicable ARARs as defined in this document.
Primary Balancing Criteria	Short-term Effectiveness	Reduces the short-term potential for human receptor interaction with MEC at the site.
	Long-term Effectiveness	Reduces the long-term potential for human receptor interaction with MEC at the site.
	Reduction of Toxicity, Mobility, and Volume	Reduces the potential for human receptor exposure to MEC risks. Does not reduce volume of MEC.
	Implementability	Highly implementable because the cost to implement is low and specialized equipment or personnel are not required.
	Cost Estimate (NPV)	Total cost is $381,000
Modifying Criteria	Regulatory and Community Acceptance	May potentially satisfy the regulatory community and the public. Regulatory and community acceptance of the alternatives will be further evaluated and reported in the Proposed Plan and Record of Decision.
Criteria		**Alternative 3: LUCs, 100 Percent Surface Clearance**
Threshold Criteria	Overall Protection of Human Health and the Environment	Would be protective of human health and most ecological receptors since it removes the direct contact pathway between potential receptors and MEC.
	Compliance with ARARs	Would comply with the applicable ARARs as defined in this document.
Primary Balancing Criteria	Short-term Effectiveness	Increase in short-term risk to construction workers associated with completing the surface clearance.
	Long-term Effectiveness	Reduces the long-term potential for human receptor interaction with MEC at the site.
	Reduction of Toxicity, Mobility, and Volume	Effective at reducing the volume of MEC on the surface. LUCs reduce the exposure risk to human receptors.
	Implementability	Implementable using conventional surface clearance techniques. Thick vegetation reduces implementability.
	Cost Estimate (NPV)	Total cost is $4,333,000
Modifying Criteria	Regulatory and Community Acceptance	May potentially satisfy the regulatory community and the public. Regulatory and community acceptance of the alternatives will be further evaluated and reported in the Proposed Plan and Record of Decision.
Criteria		**Alternative 4: Unlimited Use/Access**
Threshold Criteria	Overall Protection of Human Health and the Environment	Would be protective of human health and most ecological receptors since it removes the direct contact pathway between potential receptors and MEC.
	Compliance with ARARs	Would comply with the applicable ARARs as defined in this document.
Primary Balancing Criteria	Short-term Effectiveness	Increase in short-term risk to construction workers associated with completing the surface and subsurface clearance.
	Long-term Effectiveness	Reduces the long-term potential for human receptor interaction with MEC at the site.
	Reduction of Toxicity, Mobility, and Volume	Effective at reducing the volume of MEC on the surface and subsurface. LUCs reduce the exposure risk to human receptors.
	Implementability	Implementable using conventional surface and subsurface clearance techniques. Thick vegetation reduces implementability.
	Cost Estimate (NPV)	Total cost is $19,688,000
Modifying Criteria	Regulatory and Community Acceptance	May potentially satisfy the regulatory community and the public. Regulatory and community acceptance of the alternatives will be further evaluated and reported in the Proposed Plan and Record of Decision.

Table 9-2: NCP Criteria for Western Range Area C

Criteria		Alternative 1: No Action
Threshold Criteria	Overall Protection of Human Health and the Environment	Not protective of human health or the environment because it does not mitigate the potential risk associated with the potential presence of MEC
	Compliance with ARARs	No action, thus, ARARs not applicable.
Primary Balancing Criteria	Short-term Effectiveness	Does not meet short-term effectiveness requirements (does not remove MEC.)
	Long-term Effectiveness	Does not meet long-term effectiveness requirements (does not remove MEC.)
	Reduction of Toxicity, Mobility, Volume	Does not reduce toxicity, mobility, or volume because no remediation takes place.
	Implementability	Highly implementable because no remedial action.
	Cost Estimate (Net Present Value [NPV])	No cost is associated with this alternative because no action would be taken.
Modifying Criteria	Regulatory and Community Acceptance	Will not satisfy either the regulatory community or the public as there would be no actions taken.
Criteria		**Alternative 2: LUCs Focused Surface Clearance**
Threshold Criteria	Overall Protection of Human Health and the Environment	Would be protective of human health and most ecological receptors since it removes the direct contact pathway between potential receptors and MEC.
	Compliance with ARARs	Would comply with the applicable ARARs as defined in this document.
Primary Balancing Criteria	Short-term Effectiveness	Increase in short-term risk to construction workers associated with completing the surface removal.
	Long-term Effectiveness	Reduces the long-term potential for human receptor interaction with MEC at the site.
	Reduction of Toxicity, Mobility, and Volume	Effective at reducing the volume of MEC on the surface. LUCs reduce the exposure risk to human receptors.
	Implementability	Implementable using conventional surface clearance techniques. Thick vegetation reduces implementability.
	Cost Estimate (NPV)	Total cost is $1,419,000
Modifying Criteria	Regulatory and Community Acceptance	May potentially satisfy the regulatory community and the public. Regulatory and community acceptance of the alternatives will be further evaluated and reported in the Proposed Plan and Record of Decision.
Criteria		**Alternative 3: LUCs; 100 Percent Surface and Focused Subsurface Clearance**
Threshold Criteria	Overall Protection of Human Health and the Environment	Would be protective of human health and most ecological receptors since it removes the direct contact pathway between potential receptors and MEC.
	Compliance with ARARs	Would comply with the applicable ARARs as defined in this document.
Primary Balancing Criteria	Short-term Effectiveness	Increase in short-term risk to construction workers associated with completing the surface and subsurface clearance.
	Long-term Effectiveness	Reduces the long-term potential for human receptor interaction with MEC at the site.
	Reduction of Toxicity, Mobility, and Volume	Effective at reducing the volume of MEC on the surface and subsurface. LUCs reduce the exposure risk to human receptors.
	Implementability	Implementable using conventional surface and subsurface clearance techniques. Thick vegetation reduces implementability.
	Cost Estimate (NPV)	Total cost is $11,553,000
Modifying Criteria	Regulatory and Community Acceptance	May potentially satisfy the regulatory community and the public. Regulatory and community acceptance of the alternatives will be further evaluated and reported in the Proposed Plan and Record of Decision.
Criteria		**Alternative 4: Unlimited Use/Access**
Threshold Criteria	Overall Protection of Human Health and the Environment	Would be protective of human health and most ecological receptors since it removes the direct contact pathway between potential receptors and MEC.
	Compliance with ARARs	Would comply with the applicable ARARs as defined in this document.
Primary Balancing Criteria	Short-term Effectiveness	Increase in short-term risk to construction workers associated with completing the surface and subsurface clearance.
	Long-term Effectiveness	Reduces the long-term potential for human receptor interaction with MEC at the site.
	Reduction of Toxicity, Mobility, and Volume	Effective at reducing the volume of MEC on the surface and subsurface. LUCs reduce the exposure risk to human receptors.
	Implementability	Implementable using conventional surface and subsurface clearance techniques. Thick vegetation reduces implementability.
	Cost Estimate (NPV)	Total cost is $11,633,000
Modifying Criteria	Regulatory and Community Acceptance	May potentially satisfy the regulatory community and the public. Regulatory and community acceptance of the alternatives will be further evaluated and reported in the Proposed Plan and Record of Decision.

Table 9-3: NCP Criteria for Western Range Area D

Criteria		Alternative 1: No Action
Threshold Criteria	Overall Protection of Human Health and the Environment	Not protective of human health or the environment because it does not mitigate the potential risk associated with the potential presence of MEC
	Compliance with ARARs	No action, thus, ARARs not applicable.
Primary Balancing Criteria	Short-term Effectiveness	Does not meet short-term effectiveness requirements (does not remove MEC.)
	Long-term Effectiveness	Does not meet long-term effectiveness requirements (does not remove MEC.)
	Reduction of Toxicity, Mobility, Volume	Does not reduce toxicity, mobility, or volume because no remediation takes place.
	Implementability	Highly implementable because no remedial action.
	Cost Estimate (Net Present Value [NPV])	No cost is associated with this alternative because no action would be taken.
Modifying Criteria	Regulatory and Community Acceptance	Will not satisfy either the regulatory community or the public as there would be no actions taken.
Criteria		**Alternative 2: LUCs; 100 Percent Surface Clearance**
Threshold Criteria	Overall Protection of Human Health and the Environment	Would be protective of human health and most ecological receptors since it removes the direct contact pathway between potential receptors and MEC.
	Compliance with ARARs	Would comply with the applicable ARARs as defined in this document.
Primary Balancing Criteria	Short-term Effectiveness	Increase in short-term risk to construction workers associated with completing the surface clearance.
	Long-term Effectiveness	Reduces the long-term potential for human receptor interaction with MEC at the site.
	Reduction of Toxicity, Mobility, and Volume	Effective at reducing the volume of MEC on the surface. LUCs reduce the exposure risk to human receptors.
	Implementability	Implementable using conventional surface clearance techniques. Thick vegetation reduces implementability.
	Cost Estimate (NPV)	Total cost is $8,427,000
Modifying Criteria	Regulatory and Community Acceptance	May potentially satisfy the regulatory community and the public. Regulatory and community acceptance of the alternatives will be further evaluated and reported in the Proposed Plan and Record of Decision.
Criteria		**Alternative 3: LUCs; Focused Surface and Subsurface Clearance**
Threshold Criteria	Overall Protection of Human Health and the Environment	Would be protective of human health and most ecological receptors since it removes the direct contact pathway between potential receptors and MEC.
	Compliance with ARARs	Would comply with the applicable ARARs as defined in this document.
Primary Balancing Criteria	Short-term Effectiveness	Increase in short-term risk to construction workers associated with completing the surface and subsurface clearance.
	Long-term Effectiveness	Reduces the long-term potential for human receptor interaction with MEC at the site.
	Reduction of Toxicity, Mobility, and Volume	Effective at reducing the volume of MEC on the surface and subsurface. LUCs reduce the exposure risk to human receptors.
	Implementability	Implementable using conventional surface and subsurface clearance techniques. Thick vegetation reduces implementability.
	Cost Estimate (NPV)	Total cost is $7,367,000
Modifying Criteria	Regulatory and Community Acceptance	May potentially satisfy the regulatory community and the public. Regulatory and community acceptance of the alternatives will be further evaluated and reported in the Proposed Plan and Record of Decision.
Criteria		**Alternative 4: Unlimited Use/Access**
Threshold Criteria	Overall Protection of Human Health and the Environment	Would be protective of human health and most ecological receptors since it removes the direct contact pathway between potential receptors and MEC.
	Compliance with ARARs	Would comply with the applicable ARARs as defined in this document.
Primary Balancing Criteria	Short-term Effectiveness	Increase in short-term risk to construction workers associated with completing the surface and subsurface clearance.
	Long-term Effectiveness	Reduces the long-term potential for human receptor interaction with MEC at the site.
	Reduction of Toxicity, Mobility, and Volume	Effective at reducing the volume of MEC on the surface and subsurface. LUCs reduce the exposure risk to human receptors.
	Implementability	Implementable using conventional surface and subsurface clearance techniques. Thick vegetation reduces implementability.
	Cost Estimate (NPV)	Total cost is $27,450,000
Modifying Criteria	Regulatory and Community Acceptance	May potentially satisfy the regulatory community and the public. Regulatory and community acceptance of the alternatives will be further evaluated and reported in the Proposed Plan and Record of Decision.

Table 9-4: NCP Criteria for Eastern Range Area A

Criteria		Alternative 1: No Action
Threshold Criteria	Overall Protection of Human Health and the Environment	Not protective of human health or the environment because it does not mitigate the potential risk associated with the potential presence of MEC
	Compliance with ARARs	No action, thus, ARARs not applicable.
Primary Balancing Criteria	Short-term Effectiveness	Does not meet short-term effectiveness requirements (does not remove MEC)
	Long-term Effectiveness	Does not meet long-term effectiveness requirements (does not remove MEC)
	Reduction of Toxicity, Mobility, Volume	Does not reduce toxicity, mobility, or volume because no remediation takes place.
	Implementability	Highly implementable because no remedial action.
	Cost Estimate (Net Present Value [NPV])	No cost is associated with this alternative because no action would be taken.
Modifying Criteria	Regulatory and Community Acceptance	Will not satisfy either the regulatory community or the public as there would be no actions taken.
Criteria		**Alternative 2: LUCs; 100 Percent Surface Clearance**
Threshold Criteria	Overall Protection of Human Health and the Environment	Would be protective of human health and most ecological receptors since it removes the direct contact pathway between potential receptors and MEC.
	Compliance with ARARs	Would comply with the applicable ARARs as defined in this document.
Primary Balancing Criteria	Short-term Effectiveness	Increase in short-term risk to construction workers associated with completing the surface clearance.
	Long-term Effectiveness	Reduces the long-term potential for human receptor interaction with MEC at the site.
	Reduction of Toxicity, Mobility, and Volume	Effective at reducing the volume of MEC on the surface. LUCs reduce the exposure risk to human receptors.
	Implementability	Implementable using conventional surface clearance techniques. Thick vegetation reduces implementability.
	Cost Estimate (NPV)	Total cost is $3,791,000
Modifying Criteria	Regulatory and Community Acceptance	May potentially satisfy the regulatory community and the public. Regulatory and community acceptance of the alternatives will be further evaluated and reported in the Proposed Plan and Record of Decision.
Criteria		**Alternative 3: LUCs; Focused Surface and Subsurface Clearance**
Threshold Criteria	Overall Protection of Human Health and the Environment	Would be protective of human health and most ecological receptors since it removes the direct contact pathway between potential receptors and MEC.
	Compliance with ARARs	Would comply with the applicable ARARs as defined in this document.
Primary Balancing Criteria	Short-term Effectiveness	Increase in short-term risk to construction workers associated with completing the surface and subsurface clearance.
	Long-term Effectiveness	Reduces the long-term potential for human receptor interaction with MEC at the site.
	Reduction of Toxicity, Mobility, and Volume	Effective at reducing the volume of MEC on the surface and subsurface. LUCs reduce the exposure risk to human receptors.
	Implementability	Implementable using conventional surface and subsurface clearance techniques. Thick vegetation reduces implementability.
	Cost Estimate (NPV)	Total cost is $4,646,000
Modifying Criteria	Regulatory and Community Acceptance	May potentially satisfy the regulatory community and the public. Regulatory and community acceptance of the alternatives will be further evaluated and reported in the Proposed Plan and Record of Decision.
Criteria		**Alternative 4: Unlimited Use/Access**
Threshold Criteria	Overall Protection of Human Health and the Environment	Would be protective of human health and most ecological receptors since it removes the direct contact pathway between potential receptors and MEC.
	Compliance with ARARs	Would comply with the applicable ARARs as defined in this document.
Primary Balancing Criteria	Short-term Effectiveness	Increase in short-term risk to construction workers associated with completing the surface and subsurface clearance.
	Long-term Effectiveness	Reduces the long-term potential for human receptor interaction with MEC at the site.
	Reduction of Toxicity, Mobility, and Volume	Effective at reducing the volume of MEC on the surface and subsurface. LUCs reduce the exposure risk to human receptors.
	Implementability	Implementable using conventional surface and subsurface clearance techniques. Thick vegetation reduces implementability.
	Cost Estimate (NPV)	Total cost is $11,948,000
Modifying Criteria	Regulatory and Community Acceptance	May potentially satisfy the regulatory community and the public. Regulatory and community acceptance of the alternatives will be further evaluated and reported in the Proposed Plan and Record of Decision.

Table 9-5: NCP Criteria for Eastern Range Area B

Criteria		Alternative 1: No Action
Threshold Criteria	Overall Protection of Human Health and the Environment	Not protective of human health or the environment because it does not mitigate the potential risk associated with the potential presence of MEC
	Compliance with ARARs	No action, thus, ARARs not applicable.
Primary Balancing Criteria	Short-term Effectiveness	Does not meet short-term effectiveness requirements (does not remove MEC.)
	Long-term Effectiveness	Does not meet long-term effectiveness requirements (does not remove MEC.)
	Reduction of Toxicity, Mobility, Volume	Does not reduce toxicity, mobility, or volume because no remediation takes place.
	Implementability	Highly implementable because no remedial action.
	Cost Estimate (Net Present Value [NPV])	No cost is associated with this alternative because no action would be taken.
Modifying Criteria	Regulatory and Community Acceptance	Will not satisfy either the regulatory community or the public as there would be no actions taken.
Criteria		**Alternative 2: LUCs; Focused Surface Clearance**
Threshold Criteria	Overall Protection of Human Health and the Environment	Would be protective of human health and most ecological receptors since it removes the direct contact pathway between potential receptors and MEC.
	Compliance with ARARs	Would comply with the applicable ARARs as defined in this document.
Primary Balancing Criteria	Short-term Effectiveness	Increase in short-term risk to construction workers associated with completing the surface clearance.
	Long-term Effectiveness	Reduces the long-term potential for human receptor interaction with MEC at the site.
	Reduction of Toxicity, Mobility, and Volume	Effective at reducing the volume of MEC on the surface. LUCs reduce the exposure risk to human receptors.
	Implementability	Implementable using conventional surface clearance techniques. Thick vegetation reduces implementability.
	Cost Estimate (NPV)	Total cost is $1,349,000
Modifying Criteria	Regulatory and Community Acceptance	May potentially satisfy the regulatory community and the public. Regulatory and community acceptance of the alternatives will be further evaluated and reported in the Proposed Plan and Record of Decision.
Criteria		**Alternative 3: LUCs; 100 Percent Surface and Focused Subsurface Clearance**
Threshold Criteria	Overall Protection of Human Health and the Environment	Would be protective of human health and most ecological receptors since it removes the direct contact pathway between potential receptors and MEC.
	Compliance with ARARs	Would comply with the applicable ARARs as defined in this document.
Primary Balancing Criteria	Short-term Effectiveness	Increase in short-term risk to construction workers associated with completing the surface and subsurface clearance.
	Long-term Effectiveness	Reduces the long-term potential for human receptor interaction with MEC at the site.
	Reduction of Toxicity, Mobility, and Volume	Effective at reducing the volume of MEC on the surface. LUCs reduce the exposure risk to human receptors.
	Implementability	Implementable using conventional surface and subsurface clearance techniques. Thick vegetation reduces implementability.
	Cost Estimate (NPV)	Total cost is $8,216,000
Modifying Criteria	Regulatory and Community Acceptance	May potentially satisfy the regulatory community and the public. Regulatory and community acceptance of the alternatives will be further evaluated and reported in the Proposed Plan and Record of Decision.
Criteria		**Alternative 4: Unlimited Use/Access**
Threshold Criteria	Overall Protection of Human Health and the Environment	Would be protective of human health and most ecological receptors since it removes the direct contact pathway between potential receptors and MEC.
	Compliance with ARARs	Would comply with the applicable ARARs as defined in this document.
Primary Balancing Criteria	Short-term Effectiveness	Increase in short-term risk to construction workers associated with completing the surface and subsurface clearance.
	Long-term Effectiveness	Reduces the long-term potential for human receptor interaction with MEC at the site.
	Reduction of Toxicity, Mobility, and Volume	Effective at reducing the volume of MEC on the surface and subsurface. LUCs reduce the exposure risk to human receptors.
	Implementability	Implementable using conventional surface and subsurface clearance techniques. Thick vegetation reduces implementability.
	Cost Estimate (NPV)	Total cost is $8,156,000
Modifying Criteria	Regulatory and Community Acceptance	May potentially satisfy the regulatory community and the public. Regulatory and community acceptance of the alternatives will be further evaluated and reported in the Proposed Plan and Record of Decision.

Table 9-6: NCP Criteria for Eastern Range Area C

Criteria		Alternative 1: No Action
Threshold Criteria	Overall Protection of Human Health and the Environment	Not protective of human health or the environment because it does not mitigate the potential risk associated with the potential presence of MEC
	Compliance with ARARs	No action, thus, ARARs not applicable.
Primary Balancing Criteria	Short-term Effectiveness	Does not meet short-term effectiveness requirements (does not remove MEC.)
	Long-term Effectiveness	Does not meet long-term effectiveness requirements (does not remove MEC.)
	Reduction of Toxicity, Mobility, Volume	Does not reduce toxicity, mobility, or volume because no remediation takes place.
	Implementability	Highly implementable because no remedial action.
	Cost Estimate (Net Present Value [NPV])	No cost is associated with this alternative because no action would be taken.
Modifying Criteria	Regulatory and Community Acceptance	Will not satisfy either the regulatory community or the public as there would be no actions taken.
Criteria		**Alternative 2: LUCs**
Threshold Criteria	Overall Protection of Human Health and the Environment	Reduces the potential impact to human health through education of risks and limitation of access to potential human receptors.
	Compliance with ARARs	Would comply with the applicable ARARs as defined in this document.
Primary Balancing Criteria	Short-term Effectiveness	Reduces the short-term potential for human receptor interaction with MEC at the site.
	Long-term Effectiveness	Reduces the long-term potential for human receptor interaction with MEC at the site.
	Reduction of Toxicity, Mobility, and Volume	Reduces the potential for human receptor exposure to MEC risks. Does not reduce volume of MEC.
	Implementability	Highly implementable because the cost to implement is low and specialized equipment or personnel are not required.
	Cost Estimate (NPV)	Total cost is $298,000
Modifying Criteria	Regulatory and Community Acceptance	May potentially satisfy the regulatory community and the public. Regulatory and community acceptance of the alternatives will be further evaluated and reported in the Proposed Plan and Record of Decision.
Criteria		**Alternative 3: LUCs; Focused Surface Clearance**
Threshold Criteria	Overall Protection of Human Health and the Environment	Would be protective of human health and most ecological receptors since it removes the direct contact pathway between potential receptors and MEC.
	Compliance with ARARs	Would comply with the applicable ARARs as defined in this document.
Primary Balancing Criteria	Short-term Effectiveness	Increase in short-term risk to construction workers associated with completing the surface clearance.
	Long-term Effectiveness	Reduces the long-term potential for human receptor interaction with MEC at the site.
	Reduction of Toxicity, Mobility, and Volume	Effective at reducing the volume of MEC on the surface. LUCs reduce the exposure risk to human receptors.
	Implementability	Implementable using conventional surface clearance techniques. Thick vegetation reduces implementability.
	Cost Estimate (NPV)	Total cost is $849,000
Modifying Criteria	Regulatory and Community Acceptance	May potentially satisfy the regulatory community and the public. Regulatory and community acceptance of the alternatives will be further evaluated and reported in the Proposed Plan and Record of Decision.
		Alternative 4: LUCS; 100 Percent Surface Clearance
Threshold Criteria	Overall Protection of Human Health and the Environment	Would be protective of human health and most ecological receptors since it removes the direct contact pathway between potential receptors and MEC.
	Compliance with ARARs	Would comply with the applicable ARARs as defined in this document.
Primary Balancing Criteria	Short-term Effectiveness	Increase in short-term risk to construction workers associated with completing the surface clearance.
	Long-term Effectiveness	Reduces the long-term potential for human receptor interaction with MEC at the site.
	Reduction of Toxicity, Mobility, and Volume	Effective at reducing the volume of MEC on the surface. LUCs reduce the exposure risk to human receptors.
	Implementability	Implementable using conventional surface clearance techniques. Thick vegetation reduces implementability over the entire MRS.
	Cost Estimate (NPV)	Total cost is $2,138,000
Modifying Criteria	Regulatory and Community Acceptance	May potentially satisfy the regulatory community and the public. Regulatory and community acceptance of the alternatives will be further evaluated and reported in the Proposed Plan and Record of Decision.
Criteria		**Alternative 5: Unlimited Use/Access**
Threshold Criteria	Overall Protection of Human Health and the Environment	Would be protective of human health and most ecological receptors since it removes the direct contact pathway between potential receptors and MEC.
	Compliance with ARARs	Would comply with the applicable ARARs as defined in this document.
Primary Balancing Criteria	Short-term Effectiveness	Increase in short-term risk to construction workers associated with completing the surface and subsurface clearance.
	Long-term Effectiveness	Reduces the long-term potential for human receptor interaction with MEC at the site.
	Reduction of Toxicity, Mobility, and Volume	Effective at reducing the volume of MEC on the surface and subsurface. LUCs reduce the exposure risk to human receptors.
	Implementability	Implementable using conventional surface and subsurface clearance techniques. Thick vegetation and private camps utilizing the area reduces implementability.
	Cost Estimate (NPV)	Total cost is $6,130,000
Modifying Criteria	Regulatory and Community Acceptance	May potentially satisfy the regulatory community and the public. Regulatory and community acceptance of the alternatives will be further evaluated and reported in the Proposed Plan and Record of Decision.

Table 9-7: NCP Criteria for Grenade Range Area

Criteria		Alternative 1: No Action
Threshold Criteria	Overall Protection of Human Health and the Environment	Not protective of human health or the environment because it does not mitigate the potential risk associated with the potential presence of MEC
	Compliance with ARARs	No action, thus, ARARs not applicable.
Primary Balancing Criteria	Short-term Effectiveness	Does not meet short-term effectiveness requirements (does not remove MEC)
	Long-term Effectiveness	Does not meet long-term effectiveness requirements (does not remove MEC)
	Reduction of Toxicity, Mobility, Volume	Does not reduce toxicity, mobility, or volume because no remediation takes place.
	Implementability	Highly implementable because no remedial action.
	Cost Estimate (Net Present Value [NPV])	No cost is associated with this alternative because no action would be taken.
Modifying Criteria	Regulatory and Community Acceptance	Will not satisfy either the regulatory community or the public as there would be no actions taken.
Criteria		**Alternative 2: LUCs**
Threshold Criteria	Overall Protection of Human Health and the Environment	Reduces the potential impact to human health through education of risks and limitation of access to potential human receptors.
	Compliance with ARARs	Would comply with the applicable ARARs as defined in this document.
Primary Balancing Criteria	Short-term Effectiveness	Reduces the short-term potential for human receptor interaction with MEC at the site.
	Long-term Effectiveness	Reduces the long-term potential for human receptor interaction with MEC at the site.
	Reduction of Toxicity, Mobility, and Volume	Reduces the potential for human receptor exposure to MEC risks. Does not reduce volume of MEC.
	Implementability	Highly implementable because the cost to implement is low and specialized equipment or personnel are not required.
	Cost Estimate (NPV)	Total cost is $273,000
Modifying Criteria	Regulatory and Community Acceptance	May potentially satisfy the regulatory community and the public. Regulatory and community acceptance of the alternatives will be further evaluated and reported in the Proposed Plan and Record of Decision.
Criteria		**Alternative 3: LUCs; Focused Surface Clearance**
Threshold Criteria	Overall Protection of Human Health and the Environment	Would be protective of human health and most ecological receptors since it removes the direct contact pathway between potential receptors and MEC.
	Compliance with ARARs	Would comply with the applicable ARARs as defined in this document.
Primary Balancing Criteria	Short-term Effectiveness	Increase in short-term risk to construction workers associated with completing the surface clearance.
	Long-term Effectiveness	Reduces the long-term potential for human receptor interaction with MEC at the site.
	Reduction of Toxicity, Mobility, and Volume	Effective at reducing the volume of MEC on the surface. LUCs reduce the exposure risk to human receptors.
	Implementability	Implementable using conventional surface clearance techniques. .
	Cost Estimate (NPV)	Total cost is $540,000
Modifying Criteria	Regulatory and Community Acceptance	May potentially satisfy the regulatory community and the public. Regulatory and community acceptance of the alternatives will be further evaluated and reported in the Proposed Plan and Record of Decision.
Criteria		**Alternative 4: LUCs; 100 Percent Surface Clearance**
Threshold Criteria	Overall Protection of Human Health and the Environment	Would be protective of human health and most ecological receptors since it removes the direct contact pathway between potential receptors and MEC.
	Compliance with ARARs	Would comply with the applicable ARARs as defined in this document.
Primary Balancing Criteria	Short-term Effectiveness	Increase in short-term risk to construction workers associated with completing the surface clearance.
	Long-term Effectiveness	Reduces the long-term potential for human receptor interaction with MEC at the site.
	Reduction of Toxicity, Mobility, and Volume	Effective at reducing the volume of MEC on the surface. LUCs reduce the exposure risk to human receptors.
	Implementability	Implementable using conventional surface clearance techniques. Thick vegetation reduces implementability over the entire MRS.
	Cost Estimate (NPV)	Total cost is $801,000
Modifying Criteria	Regulatory and Community Acceptance	May potentially satisfy the regulatory community and the public. Regulatory and community acceptance of the alternatives will be further evaluated and reported in the Proposed Plan and Record of Decision.
Criteria		**Alternative 5: Unlimited Use/Access**
Threshold Criteria	Overall Protection of Human Health and the Environment	Would be protective of human health and most ecological receptors since it removes the direct contact pathway between potential receptors and MEC.
	Compliance with ARARs	Would comply with the applicable ARARs as defined in this document.
Primary Balancing Criteria	Short-term Effectiveness	Increase in short-term risk to construction workers associated with completing the surface and subsurface clearance.
	Long-term Effectiveness	Reduces the long-term potential for human receptor interaction with MEC at the site.
	Reduction of Toxicity, Mobility, and Volume	Effective at reducing the volume of MEC on the surface and subsurface. LUCs reduce the exposure risk to human receptors.
	Implementability	Implementable using conventional surface and subsurface clearance techniques. Thick vegetation reduces implementability.
	Cost Estimate (NPV)	Total cost is $1,286,000
Modifying Criteria	Regulatory and Community Acceptance	May potentially satisfy the regulatory community and the public. Regulatory and community acceptance of the alternatives will be further evaluated and reported in the Proposed Plan and Record of Decision.

Table 9-8: NCP Criteria for Mine and Booby Trap Area

Criteria		Alternative 1: No Action
Threshold Criteria	Overall Protection of Human Health and the Environment	Not protective of human health or the environment because it does not mitigate the potential risk associated with the potential presence of MEC.
	Compliance with ARARs	No action, thus, ARARs not applicable.
Primary Balancing Criteria	Short-term Effectiveness	Does not meet short-term effectiveness requirements (does not remove MEC)
	Long-term Effectiveness	Does not meet long-term effectiveness requirements (does not remove MEC)
	Reduction of Toxicity, Mobility, Volume	Does not reduce toxicity, mobility, or volume because no remediation takes place.
	Implementability	Highly implementable because no remedial action.
	Cost Estimate (Net Present Value [NPV])	No cost is associated with this alternative because no action would be taken.
Modifying Criteria	Regulatory and Community Acceptance	Will not satisfy either the regulatory community or the public as there would be no actions taken.
Criteria		**Alternative 2: LUCs**
Threshold Criteria	Overall Protection of Human Health and the Environment	Reduces the potential impact to human health through education of risks and limitation of access to potential human receptors.
	Compliance with ARARs	Would comply with the applicable ARARs as defined in this document.
Primary Balancing Criteria	Short-term Effectiveness	Reduces the short-term potential for human receptor interaction with MEC at the site.
	Long-term Effectiveness	Reduces the long-term potential for human receptor interaction with MEC at the site.
	Reduction of Toxicity, Mobility, and Volume	Reduces the potential for human receptor exposure to MEC risks. Does not reduce volume of MEC.
	Implementability	Highly implementable because the cost to implement is low and specialized equipment or personnel are not required.
	Cost Estimate (NPV)	Total cost is $272,000
Modifying Criteria	Regulatory and Community Acceptance	May potentially satisfy the regulatory community and the public. Regulatory and community acceptance of the alternatives will be further evaluated and reported in the Proposed Plan and Record of Decision.
Criteria		**Alternative 3: LUCs; 100 Percent Surface Clearance and Subsurface Clearance to Six Inches**
Threshold Criteria	Overall Protection of Human Health and the Environment	Would be protective of human health and most ecological receptors since it removes the direct contact pathway between potential receptors and MEC.
	Compliance with ARARs	Would comply with the applicable ARARs as defined in this document.
Primary Balancing Criteria	Short-term Effectiveness	Increase in short-term risk to construction workers associated with completing the surface and subsurface clearance.
	Long-term Effectiveness	Reduces the long-term potential for human receptor interaction with MEC at the site.
	Reduction of Toxicity, Mobility, and Volume	Effective at reducing the volume of MEC on the surface and in the subsurface. LUCs reduce the exposure risk to human receptors.
	Implementability	Implementable using conventional surface and subsurface clearance techniques. Limited access to cays reduces implementability.
	Cost Estimate (NPV)	Total cost is $566,000
Modifying Criteria	Regulatory and Community Acceptance	May potentially satisfy the regulatory community and the public. Regulatory and community acceptance of the alternatives will be further evaluated and reported in the Proposed Plan and Record of Decision.
Criteria		**Alternative 4: Unlimited Use/Access**
Threshold Criteria	Overall Protection of Human Health and the Environment	Would be protective of human health and most ecological receptors since it removes the direct contact pathway between potential receptors and MEC.
	Compliance with ARARs	Would comply with the applicable ARARs as defined in this document.
Primary Balancing Criteria	Short-term Effectiveness	Increase in short-term risk to construction workers associated with completing the surface and subsurface clearance.
	Long-term Effectiveness	Reduces the long-term potential for human receptor interaction with MEC at the site.
	Reduction of Toxicity, Mobility, and Volume	Effective at reducing the volume of MEC on the surface and subsurface. LUCs reduce the exposure risk to human receptors.
	Implementability	Implementable using conventional surface clearance techniques. Vegetation and potential private property issues reduce implementability.
	Cost Estimate (NPV)	Total cost is $617,000
Modifying Criteria	Regulatory and Community Acceptance	May potentially satisfy the regulatory community and the public. Regulatory and community acceptance of the alternatives will be further evaluated and reported in the Proposed Plan and Record of Decision.

Table 9-9: Remedial Action Cost Estimates

MRS	Alternative	Total Capital Costs	Total Annual Costs (Present Worth)	Total Capital and Annual Costs
Western Range Area B	1 - No Action	$0	$0	$0
	2 - LUCs	$221,000	$160,000	$381,000
	3 - LUCs and 100 Percent Surface Clearance	$4,173,000	$160,000	$4,333,000
	4 - 100 Percent Subsurface Clearance (24 inches)	$19,671,000	$17,000	$19,688,000
Western Range Area C	1 - No Action	$0	$0	$0
	2 - LUCs and Focused Surface Clearance	$1,320,000	$160,000	$1,419,000
	3 - LUCs, 100 Percent Surface Clearance and Focused Subsurface Clearance (12 Inches)	$11,393,000	$160,000	$11,553,000
	4 - 100 Percent Subsurface Clearance (24 inches)	$11,616,000	$17,000	$11,633,000
Western Range Area D	1 - No Action	$0	$0	$0
	2 - LUCs and 100 Percent Surface Clearance	$8,267,000	$160,000	$8,427,000
	3 - LUCs and Focused Subsurface Clearance (12 Inches)	$7,310,000	$160,000	$7,367,000
	4 - 100 Percent Subsurface Clearance (24 inches)	$27,433,000	$17,000	$27,450,000
Eastern Range Area A	1 - No Action	$0	$0	$0
	2 - LUCs and 100 Percent Surface Clearance	$3,631,000	$160,000	$3,791,000
	3 - LUCs and Focused Subsurface Clearance (12 Inches)	$4,549,000	$160,000	$4,646,000
	4 - 100 Percent Subsurface Clearance (12 inches)	$11,931,000	$17,000	$11,948,000
Eastern Range Area B	1 - No Action	$0	$0	$0
	2 - LUCs and Focused Surface Clearance	$1,219,000	$160,000	$1,349,000
	3 - LUCs, 100 Percent Surface Clearance, and Focused Subsurface Clearance (12 Inches)	$8,056,000	$160,000	$8,216,000
	4 - 100 Percent Subsurface Clearance (12 inches)	$8,139,000	$17,000	$8,156,000
Eastern Range Area C	1 - No Action	$0	$0	$0
	2 - LUCs	$138,000	$160,000	$298,000
	3 - LUCs and Focused Surface Clearance	$721,000	$160,000	$849,000
	4 - LUCs and 100 Percent Surface Clearance	$1,978,000	$160,000	$2,138,000
	5 - 100 Percent Subsurface Clearance (12 inches)	$6,113,000	$17,000	$6,130,000
Grenade Range Area	1 - No Action	$0	$0	$0
	2 - LUCs	$113,000	$160,000	$273,000
	3 - LUCs and Focused Surface Clearance	$386,000	$160,000	$540,000
	4 - LUCs and 100 Percent Surface Clearance	$641,000	$160,000	$801,000
	5 - 100 Percent Subsurface Clearance (12 inches)	$1,269,000	$17,000	$1,286,000
Mine and Booby Trap Area	1 - No Action	$0	$0	$0
	2 - LUCs	$112,000	$160,000	$272,000
	3 - LUCs and Focused Surface / Subsurface Clearance to 6 inches	$410,000	$160,000	$566,000
	4 - 100 Percent Subsurface Clearance (12 inches)	$600,000	$17,000	$617,000

APPENDIX A: GSV LETTER REPORT
MILITARY MUNITIONS RESPONSE PROGRAM
REMEDIAL INVESTIGATION/FEASIBILITY STUDY

FORMER CAMP MAXEY
Paris, Texas

EOTI
EXPLOSIVE ORDNANCE TECHNOLOGIES, INC.
ORDNANCE AND EXPLOSIVE REMEDIATION
9050 Executive Park Dr. • Suite 106A •Knoxville, TN 37923
Tel: (865) 200-8081 • Fax: (865) 766-5971

June 10, 2013 Maxey-026

Commander, US Army Engineering & Support Center, Huntsville
Attn: USAESCH-OE-DC, John Cook
4820 University Square
Huntsville, Alabama 35816-1822

RE: Remedial Investigation / Feasibility Study, Former Camp Maxey, Texas IVS Letter Report Revision 2

Explosive Ordnance Technologies, Inc. (EOTI) is pleased to submit the revised Instrument Verification Strip (IVS) letter report for the Remedial Investigation / Feasibility Study (RI/FS) at the Former Camp Maxey in Texas. The revision incorporates changes resulting from the initial review by CEHNC. Responses to comments are addressed on the enclosed Form 7.

Please contact me at (865) 200-8081 if you have any questions or need any additional information.

Sincerely,

Explosive Ordnance Technologies, Inc.

James Y. Daffron, PE
Project Manager

NAeVA GEOPHYSICS INC.
THE LEADER IN SUBSURFACE DETECTION
Subsurface Geophysical Surveys

GPR
MAGNETICS
ELECTROMAGNETICS
SEISMICS
RESISTIVITY
UTILITY LOCATION
UXO DETECTION
BOREHOLE CAMERA
STAFF SUPPORT

June 10, 2013

Mr. Jim Daffron
Project Manager
EOTI
Phone: 865-200-8081

Dear Mr. Daffron:

This letter is written to inform you of the results of the Instrument Verification Strip (IVS) that NAEVA Geophysics, Inc. performed at the start of the geophysical investigation at the Former Camp Maxey Artillery Ranges near Paris, Texas on May 20th and 21st, 2013. The purpose of the IVS is to demonstrate the effectiveness of all instrumentation, methods, and personnel prior to the initiation of fieldwork and document the site-specific capabilities of the system.

Equipment

The transect and meandering path surveys are to be completed by using industry-standard GPS-integrated Geonics EM61 MK2 metal detectors, which may cover up to 4.125 miles per day. This device is a four-channel time domain EM device that detects both ferrous and non-ferrous metal objects. This system is highly suitable for use in developed settings, where cultural features and environmental noise contribute to the data. The man-portable EM61 MK2 uses an air-cored 1.0-meter by 0.5-meter copper transceiver coil mounted on wheels at 40 centimeters above the ground. The wheels will be employed in open, smooth areas. A two-man stretcher (litter mode) will be employed on transects if vegetation clearance proves inadequate for wheel mode. Target response with the EM61 MK2 is a single sharply defined peak, facilitating quick and accurate location. Data are recorded at several intervals of time (time gates) over a single target, which provides a measurement of the response decay. Data acquisition is supported by a field computer, which includes real-time graphic display, high-capacity data storage, and input connections for simultaneous collection of EM and external GPS positioning data. To collect useful GPS data at Maxey's varied forest cover, the GPS will be a Trimble GeoXH 6000 receiver whose accuracy averages approximately two meters in varying wooded conditions.

IVS Design

One IVS was installed just north of transect E-3B-A-2 in the Eastern Range Area. The IVS was oriented roughly North-South and five small Industry Standard Objects (ISOs) items were installed vertical at a depth of 6 inches in a line.

DGM Survey Activities

NAEVA's first field crew (Geo A) collected the background (**Figure 1**) and seeded IVS (**Figure 2**) on May 20th. Except for a few low amplitude responses, The IVS was determined to be relatively free of anomalies and was seeded as described above. NAEVA's second field crew (Geo B) arrived on site on May 21st and collected the seeded IVS (**Figure 3**). For the background and seeded IVS survey, six lines were collected at 0, 0.375, 0.75 (seeded line), 1.125, and 1.5, with the background line at 3.75 meters. These six lines were collected on the first day as the initial IVS. All subsequent days' collections of the IVS were over just lines 0.75 and 3.75. All IVS data was collected in wheel mode, if it is determined that litter mode will be needed the six line seeded IVS will be collected in this method.

Results

The background noise levels at the both IVSs were calculated from the background IVS survey and the background line of data for all collections of the IVS on the 20th and 21st. Three and five times the standard deviation was used as the background noise values. This is an

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industry accepted determination for background noise. The IVS is flat and in a relatively low noise environment. Slightly elevated background noise levels have been observed in other parts of the site. The table below shows the background noise range for both systems.

	Noise Range (3x Std Deviation)		**Noise Range (5x Std Deviation)**	
	Minimum	**Maximum**	**Minimum**	**Maximum**
Geo A	1.74	3.48	2.9	5.8
Geo B	2.28	3.45	3.8	5.75

The below table depicts the expected response values for the IVS. These values were calculated from the average of the targeted response on line 0.75 (seeded line) for tests 0520AIVS2 and 0520BIVS1. All subsequent runs of the IVS through May 27th (last day of collection prior to break) were within the stated quality control measures of greater than or equal to 75% of the expected value.

IVS Seed ID	X UTM	Y UTM	Expected Responses for Channel 2	Minimum Allowable Response
ISO0	262683.87	3748966.74	66.36	49.77
ISO1	262684.85	3748963.95	74.16	55.62
ISO2	262685.84	3748961.12	66.04	49.53
ISO3	262686.84	3748958.35	69.75	52.31
ISO4	262687.84	3748955.45	72.33	54.25

The below table depicts the response values for both teams over the IVS at half a line spacing over from the seeded line. For Geo A, multiple six lines IVSs were collected over the seeded IVS on the 20th, so the recorded responses on the half a line spacing over for each ISO was averaged together to determine the Expected Response for Channel 2. For Geo B, only one pass of the seeded IVS was collected on the 21st, so the recorded responses for Channel 2 on the half a line spacing over for each ISO were used. To determine the expected response for both teams for the blind seed items that will be buried in the grids, the highest and lowest readings (31.22 and 19.02 respectively) were thrown out and the rest were averaged. The expected response for the blind seeds in the grids (if buried vertical at 6 inches) is 26.41mV with minimum allowable response of 19.81mV.

Team ID	IVS Seed ID	X UTM	Y UTM	Minimum Allowable Response	Expected Responses for Channel 2
Geo A	ISO0	262683.87	3748966.74	22.80	30.40
	ISO1	262684.85	3748963.95	18.71	24.95
	ISO2	262685.84	3748961.12	19.00	25.34
	ISO3	262686.84	3748958.35	20.55	27.41
	ISO4	262687.84	3748955.45	23.17	30.90
Geo B	ISO0	262683.87	3748966.74	14.26	19.02
	ISO1	262684.85	3748963.95	16.76	22.35
	ISO2	262685.84	3748961.12	23.41	31.22
	ISO3	262686.84	3748958.35	17.20	22.94
	ISO4	262687.84	3748955.45	20.26	27.01

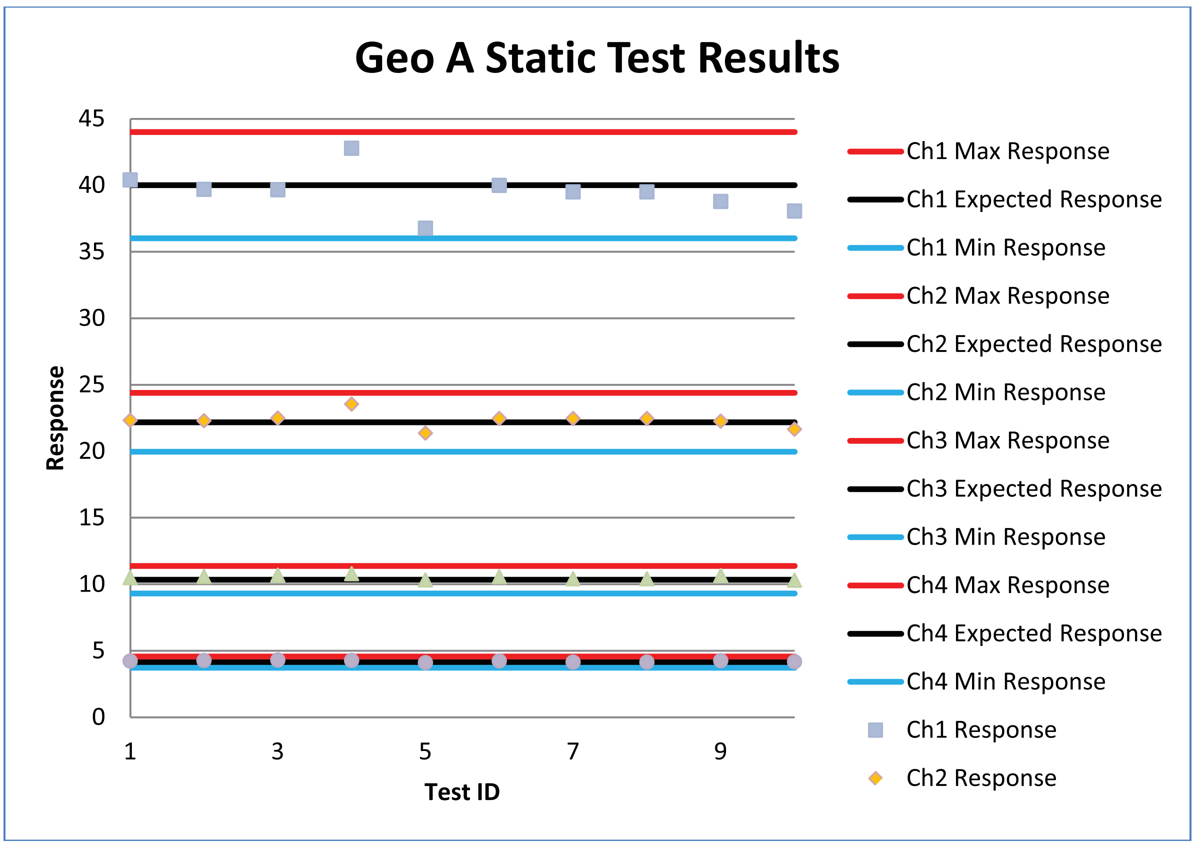
Geo A detected all seeds within 1.5 meters of the seed item locations except for the IVS collected in the afternoon of May 24th which were detected within approximately 3.7 to 3.8 meters. Geo B detected all seeds within 2 meters of the seed locations (surveyed in with RTK GPS) except for the IVS collected in the afternoon of May 24th which were detected within approximately 3.1 meters. It was determined that on the afternoon of May 24th the GeoXH GPS units lock onto a different solution therefore giving a lower accuracy. Since the data positioned with the GeoXH GPS units is only being used for target density and grid placement, the recorded offset are acceptable.

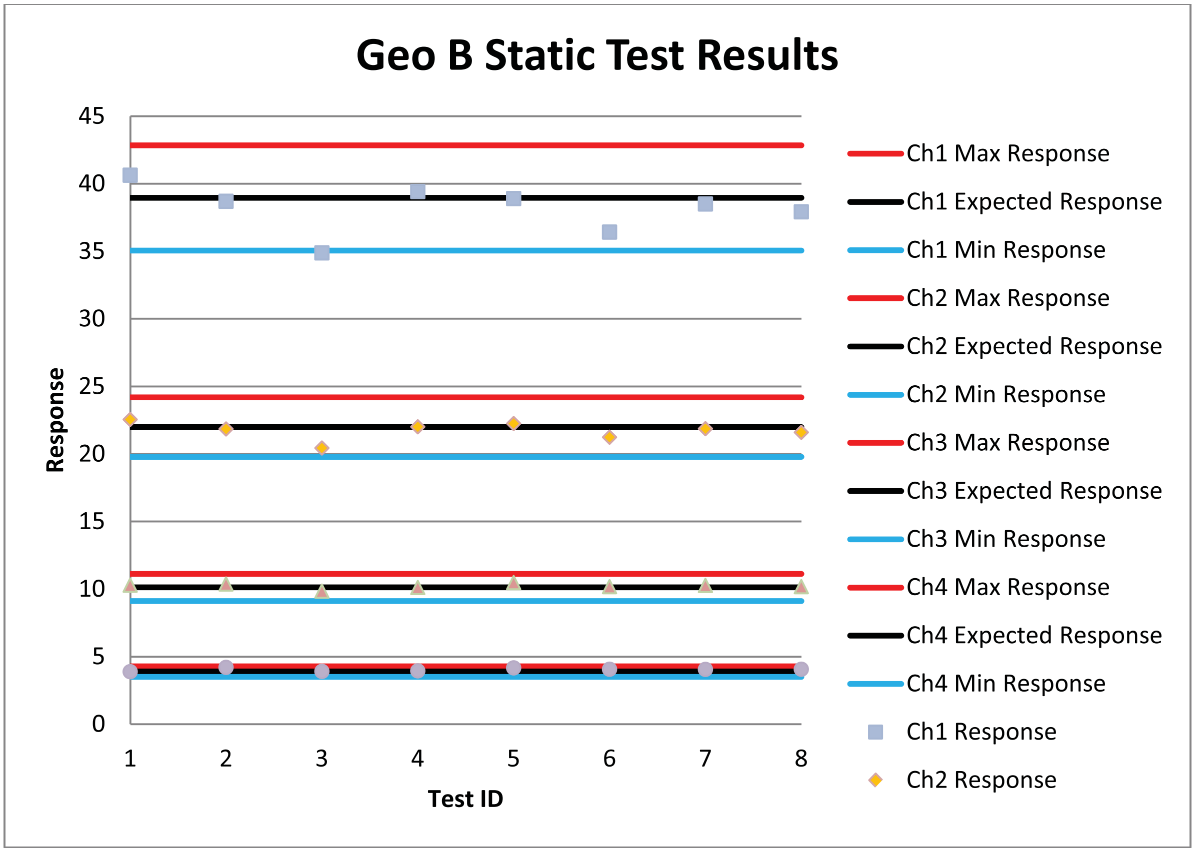
In addition to checking the amplitude and positional accuracy of the targeted locations in the IVS, the following tests were also evaluated to ensure the equipment was working correctly.

- Personnel Tests – All readings were within +/- 2mV.
- Cable Shake Test – Data profile did not exhibit any spikes
- Static Background and Static Standard Response Test - All background data was within +/- 2mV and the response did not exceed +/- 10% after background correction. This test is preformed with an ISO placed in a jig mounted over the coil. The expected value was obtained by taking the average of the first day's readings. Below table displays the expected responses and the minimum and maximum values for each team.

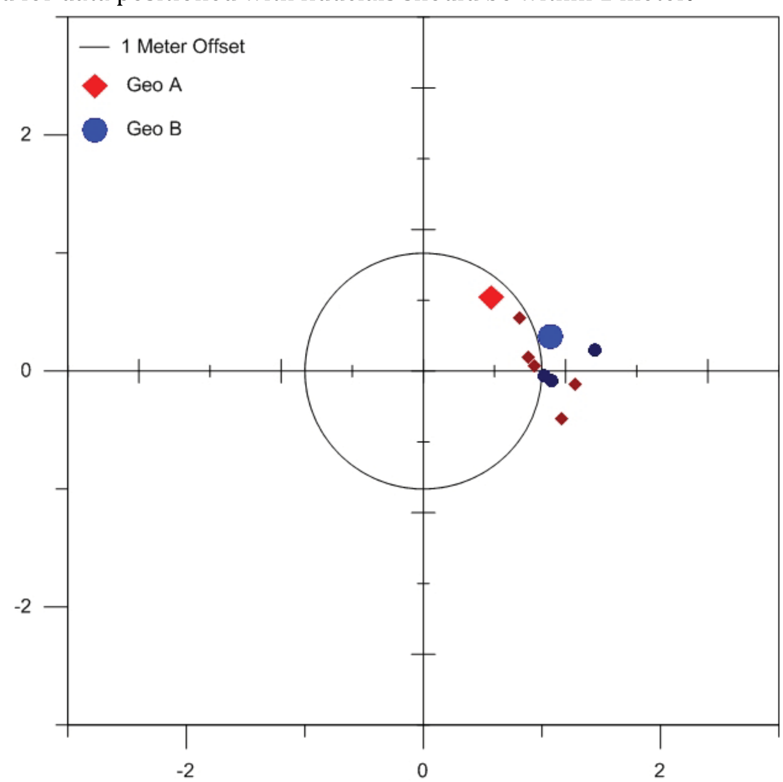
	Channel 2		
	Min Response	Expected Value	Max Response
Geo A	19.9575	22.175	24.3925
Geo B	19.782	21.98	24.178

The below charts display the static spike test results for both teams for all channels through May 27th. The pass/fail criterion is only based on channel 2.





- GeoXH GPS QC Test - All readings were within 2 meters. A field change request will be submitted to have the acceptance criteria for data positioned with the GeoXH (density transects) should be within 5 meters and for data positioned with fiducials should be within 1 meter.



Threshold recommendation

After careful analysis, NAEVA recommends a targeting threshold of 5 mV in Channel 2 for the transect survey. This response level has been shown to allow the consistent detection a 37mm to depths of approximately 31cm. Observed noise levels on the eastern area transects are generally low with more noise in the north. This threshold should minimize the selection of targets that are not associated with a metallic source object. In addition, Channel 2 field data to date exhibit few consistent response features with amplitudes less than 5 mV. In areas where the background noise levels are reduced, anomalies with a good decay across all channels and exhibiting a response consistent with a metallic source are selected below 5mV. These targets are identified with comments. Once grid locations have been selected and data has been collected, the targeting threshold could be lowered to 2.7mV, depending on noise levels, to allow detection of 37mm to a depth of 40.7cm (11x the diameter). If this threshold was used for the transects, significant number of noise targets would be selected and could potentially skew the location of the grids.

Deliverables

All raw and processed data including target lists have been submitted to the FTP site.

Sincerely,

Karen Lemley
Project Manager/Senior Geophysicist

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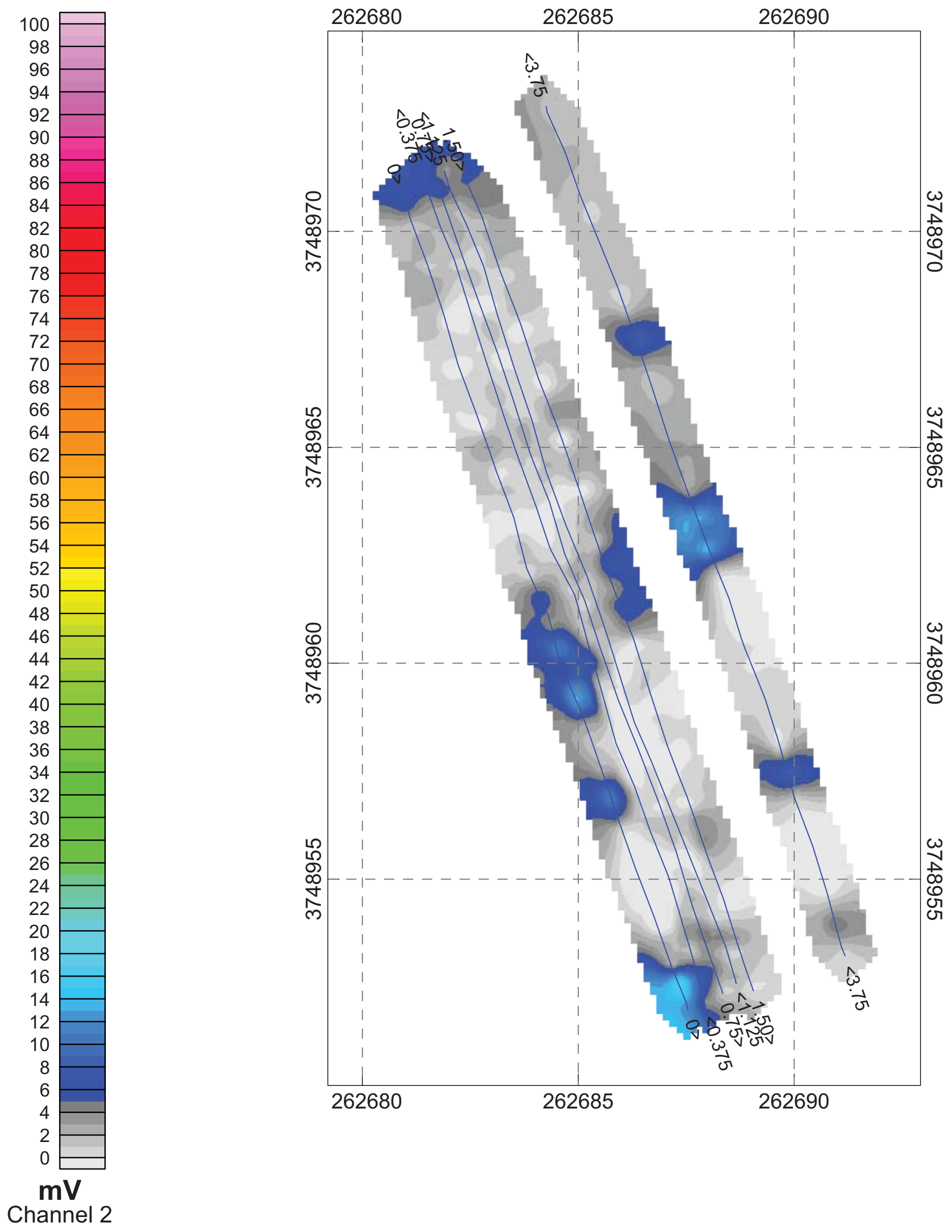

2.5 0 2.5
(meters)
NAD83 / UTM zone 15N

Legend

- Peak Response Location
- Seeded ISO (RTK GPS)
- Seeded ISO (GeoXH GPS)

Figure 1

EOTI
EM61 MK2 Person Portable IVS Line IVS - 0520AIVS1 (Background Survey) Former Camp Maxey Artillery Ranges Paris, Texas
Date of Survey: 05/20/2013

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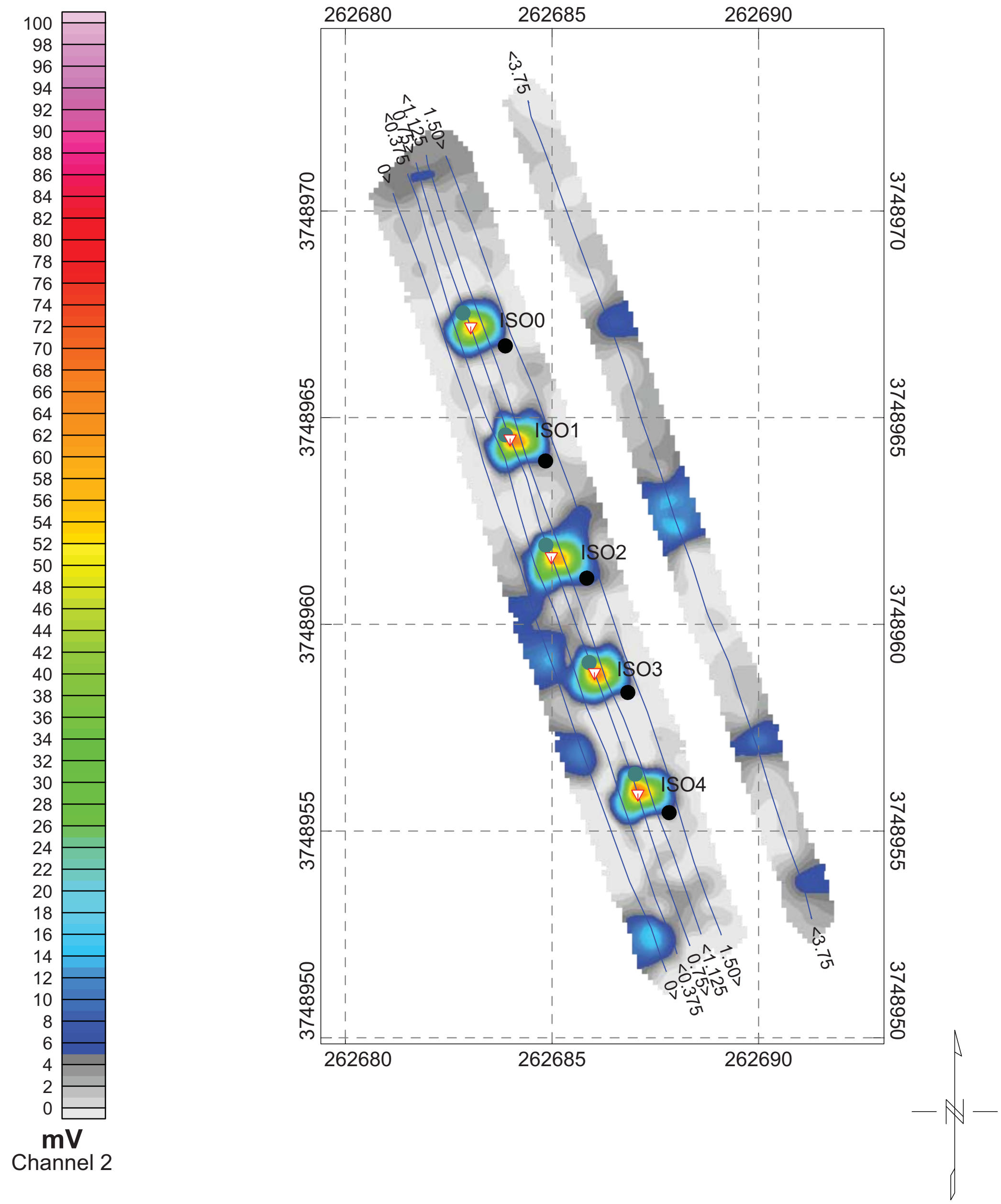
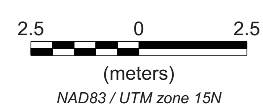
Subsurface Geophysical Surveys





Legend

- Peak Response Location
- Seeded ISO (RTK GPS)
- Seeded ISO (GeoXH GPS)

Figure 2

EOTI
EM61 MK2 Person Portable IVS Line Instrument Verification Strip - 0520AIVS2 Former Camp Maxey Artillery Ranges Paris, Texas
Date of Survey: 05/20/2013

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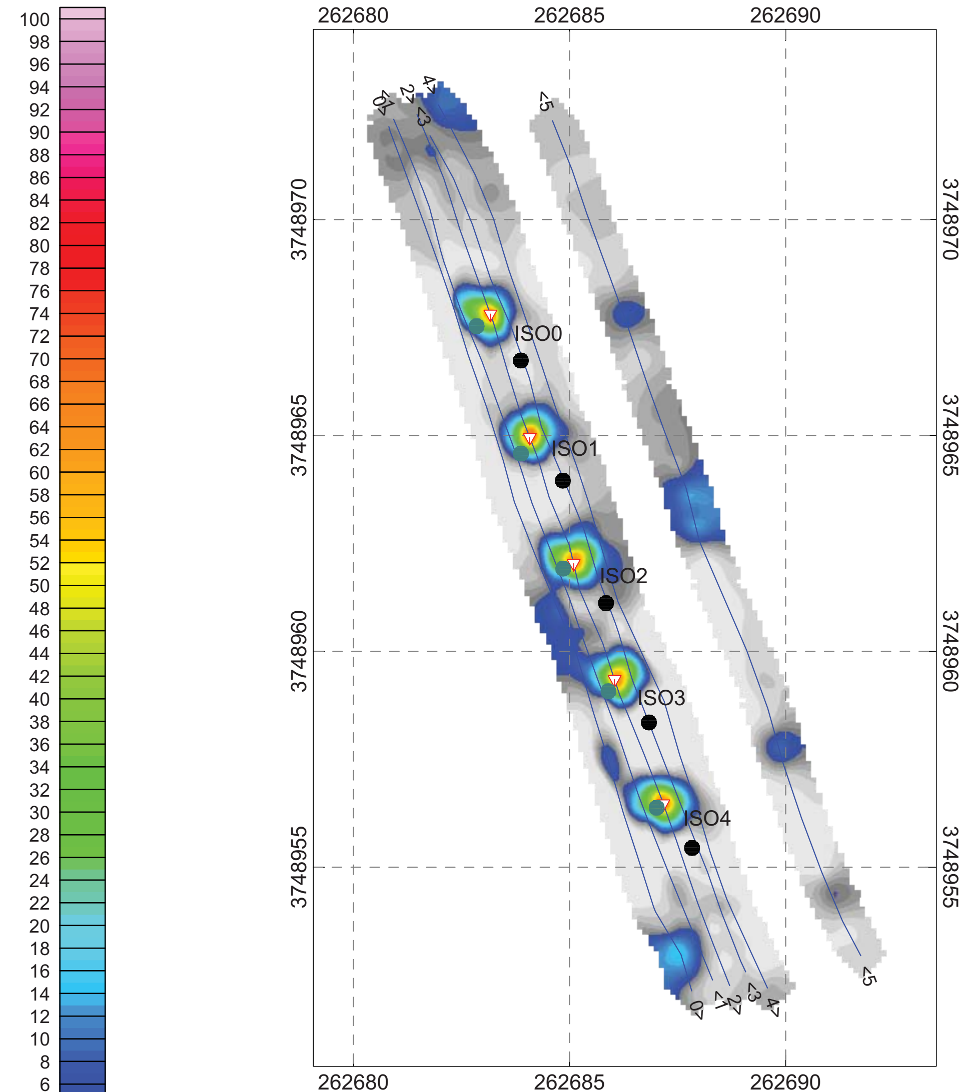


2.5 0 2.5
(meters)
NAD83 / UTM zone 15N

Legend

- Peak Response Location
- Seeded ISO (RTK GPS)
- Seeded ISO (GeoXH GPS)

Figure 3

EOTI
EM61 MK2 Person Portable IVS Line Instrument Verification Strip - 0521BIVS1 Former Camp Maxey Artillery Ranges Paris, Texas
Date of Survey: 05/21/2013

APPENDIX B: MEC INVESTIGATION DATA
MILITARY MUNITIONS RESPONSE PROGRAM
REMEDIAL INVESTIGATION/FEASIBILITY STUDY

FORMER CAMP MAXEY
Paris, Texas

Target ID	Location	MRS_ID	Removal Date	Anomaly Type	Description	Depth	Final X	Final Y
G10AG10001	Maxey Range Complex	Grenade Area	20130913	S	Seed	3	260667.19637900	3743944.2361100
G10AG10002	Maxey Range Complex	Grenade Area	20130913	CD	Scrap Metal	8	260661.61761100	3743943.0403900
G10AG10003	Maxey Range Complex	Grenade Area	20130913	CD	Scrap Metal	4	260664.56962400	3743943.4481700
G10AG10004	Maxey Range Complex	Grenade Area	20130913	CD	Metal Clamp	8	260662.58283900	3743936.6868600
G10AG10005	Maxey Range Complex	Grenade Area	20130913	CD	Metal spike	4	260656.50073500	3743941.1985100
G10AG10006	Maxey Range Complex	Grenade Area	20130913	CD	5" Bolt	4	260665.27101000	3743944.1212100
G10AG10007	Maxey Range Complex	Grenade Area	20130913	CD	10" Chain	4	260668.46538600	3743940.9081400
G10AG10008	Maxey Range Complex	Grenade Area	20130913	CD	15" Metal Bar	6	260668.17915700	3743942.9101100
G10AG10009	Maxey Range Complex	Grenade Area	20130913	CD	Scrap Metal	6	260662.26234200	3743942.1919100
G10AG10010	Maxey Range Complex	Grenade Area	20130913	CD	Horse Shoe	3	260670.64125500	3743939.7764100
G10AG10011	Maxey Range Complex	Grenade Area	20130913	CD	10" Metal Bar	4	260667.53249500	3743941.4392500
G10AG10012	Maxey Range Complex	Grenade Area	20130913	CD	Scrap Metal	4	260670.69634800	3743939.0116400
G10AG10013	Maxey Range Complex	Grenade Area	20130913	CD	Horse Shoe	6	260662.87742900	3743944.3818800
G10AG10014	Maxey Range Complex	Grenade Area	20130913	MD	30 cal Bullet	10	260665.86276600	3743932.4133300
G10AG10015	Maxey Range Complex	Grenade Area	20130913	CD	Horse Shoe	6	260664.47398400	3743942.5903900
G10AG10016	Maxey Range Complex	Grenade Area	20130913	CD	Wire	10	260668.11394800	3743943.8653200
G10AG10017	Maxey Range Complex	Grenade Area	20130913	CD	Scrap Metal	8	260662.43362100	3743939.2499100
G10AG10018	Maxey Range Complex	Grenade Area	20130913	CD	Metal Hook	6	260664.34425800	3743944.6832400
G10AG10019	Maxey Range Complex	Grenade Area	20130913	CD	Scrap Metal	8	260660.98392900	3743938.3879300
G10AG10020	Maxey Range Complex	Grenade Area	20130913	CD	Nail Pit	6	260656.51544400	3743937.7982600
G10AG10021	Maxey Range Complex	Grenade Area	20130913	CD	Scrap Metal	8	260664.09288400	3743936.5972500
G10AG10022	Maxey Range Complex	Grenade Area	20130913	CD	Scrap Metal	6	260666.22761000	3743938.5101200
G10AG10023	Maxey Range Complex	Grenade Area	20130913	CD	Scrap Metal	31	260662.15987000	3743941.3883300
G10AG10024	Maxey Range Complex	Grenade Area	20130913	CD	Scrap Metal	2	260667.25557900	3743945.5717100
G10AG10025	Maxey Range Complex	Grenade Area	20130913	CD	Metal Clamp	3	260663.65861100	3743943.7481900
G10AG10026	Maxey Range Complex	Grenade Area	20130913	CD	Nails	1	260657.21284700	3743935.8167800
G10AG10027	Maxey Range Complex	Grenade Area	20130913	CD	Scrap Metal	3	260660.65530600	3743941.6094700
G10AG10028	Maxey Range Complex	Grenade Area	20130913	CD	Scrap Metal	3	260658.99194100	3743935.2539500
G10AG10029	Maxey Range Complex	Grenade Area	20130913	CD	Nails	3	260669.31561100	3743937.2844300
G10AG10030	Maxey Range Complex	Grenade Area	20130913	CD	Bolt & Nails	4	260664.53876200	3743941.5453200
G10AG10031	Maxey Range Complex	Grenade Area	20130913	CD	Scrap Metal	8	260666.71304200	3743930.9837000
G10AG10032	Maxey Range Complex	Grenade Area	20130913	CD	Trash Pit	8	260663.71359700	3743930.3225200
G10AG10033	Maxey Range Complex	Grenade Area	20130913	CD	Scrap Metal	10	260669.66094500	3743932.3172700
G10AG10034	Maxey Range Complex	Grenade Area	20130913	CD	Scrap Metal	6	260670.92365600	3743935.8562300
G10AG10035	Maxey Range Complex	Grenade Area	20130913	CD	Nails	4	260659.52017500	3743937.7174800
G10AG10036	Maxey Range Complex	Grenade Area	20130913	CD	Nails	4	260660.32207800	3743936.7734200
G10AG10037	Maxey Range Complex	Grenade Area	20130913	CD	Nails	4	260661.10012500	3743936.3021400
G10AG10038	Maxey Range Complex	Grenade Area	20130913	MD	30 cal Bullet	3	260657.70452400	3743943.9316800
G10AG10039	Maxey Range Complex	Grenade Area	20130913	CD	Nails	6	260663.59892800	3743933.8392500
G10BG10001	Maxey Range Complex	Grenade Area	20130909	CD	Trash Pit	5	259859.71087300	3744532.5894900
G10BG10002	Maxey Range Complex	Grenade Area	20130909	CD	Nail Pit	4	259856.83258600	3744532.5901000
G10BG10003	Maxey Range Complex	Grenade Area	20130909	CD	Trash Pit	4	259858.32259000	3744533.0365800
G10BG10004	Maxey Range Complex	Grenade Area	20130909	CD	Nail Pit	4	259857.67421500	3744533.6650400
G10BG10005	Maxey Range Complex	Grenade Area	20130909	CD	Nail Pit	4	259861.13212100	3744532.4305100
G10BG10006	Maxey Range Complex	Grenade Area	20130909	CD	Nail Pit	4	259857.86264400	3744535.3225600
G10BG10007	Maxey Range Complex	Grenade Area	20130909	S	Seed	3	259862.00550400	3744539.9043500
G10BG10008	Maxey Range Complex	Grenade Area	20130909	CD	Nail Pit	4	259859.19821400	3744534.3910300
G10BG10009	Maxey Range Complex	Grenade Area	20130909	CD	Nail Pit	2	259861.40016300	3744533.9531200
G10BG10010	Maxey Range Complex	Grenade Area	20130909	CD	Trash Pit	4	259861.91324700	3744532.9509900
G10BG10011	Maxey Range Complex	Grenade Area	20130909	CD	Trash Pit	3	259858.66320700	3744536.0161700
G10BG10012	Maxey Range Complex	Grenade Area	20130909	MD	Frag	2	259864.31664500	3744541.0548800
G10BG10013	Maxey Range Complex	Grenade Area	20130909	CD	Trash Pit	4	259857.06812200	3744534.6736400
G10BG10014	Maxey Range Complex	Grenade Area	20130909	CD	Trash Pit	3	259859.51080000	3744535.8545100
G10BG10015	Maxey Range Complex	Grenade Area	20130909	CD	Trash Pit	4	259862.16280000	3744535.0749400
G10BG10016	Maxey Range Complex	Grenade Area	20130909	CD	Nails&Nut	4	259862.34210800	3744548.2502400
G10BG10017	Maxey Range Complex	Grenade Area	20130909	CD	Trash Pit	4	259860.24993300	3744536.4720400
G10BG10018	Maxey Range Complex	Grenade Area	20130909	CD	Trash Pit	3	259861.67200400	3744536.2777800
G10BG10019	Maxey Range Complex	Grenade Area	20130909	MD	Frag	2	259872.46913300	3744542.3502200
G10BG10020	Maxey Range Complex	Grenade Area	20130909	CD	Trash Pit	2	259865.84634200	3744547.7877300
G10CG10002	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	1	259916.63450100	3743996.8900400
G10CG10006	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	1	259916.81519300	3743998.2065100
G10CG10010	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	1	259915.30287300	3743998.5294900
G10CG10012	Maxey Range Complex	Grenade Area	20130923	CD	Wire/Scrap Metal	2	259904.89478100	3744002.5691600
G10CG10014	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	2	259907.37112200	3743998.4418600
G10CG10021	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	1	259913.17489100	3744000.1092400
G10CG10026	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	2	259911.59760300	3743999.9616900
G10CG10030	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	1	259902.32837500	3744000.4770800
G10CG10034	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	0	259907.80882300	3743994.3586200
G10CG10035	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	2	259906.31024400	3743999.9780100
G10CG10043	Maxey Range Complex	Grenade Area	20130910	MD	2.36 RKT Fins	0	259904.03004800	3744001.8101200
G10CG10053	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	2	259914.78692300	3743990.1235900
G10CG10057	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	3	259914.13816800	3743995.6149100
G10CG10064	Maxey Range Complex	Grenade Area	20130910	MD	60mm tail fins	6	259912.76481600	3744002.9909600
G11CG10001	Maxey Range Complex	Grenade Area	20130910	MD	2.36 empty RKT MTR	5	259647.62258500	3744019.2534400

G11CG10002	Maxey Range Complex	Grenade Area	20130910	S	Seed	3	259654.08738300	3744016.9540900
G11CG10003	Maxey Range Complex	Grenade Area	20130910	MD	Rifle grenade Illum empty	3	259651.85270000	3744017.1323200
G11CG10004	Maxey Range Complex	Grenade Area	20130910	CD	Chain Links	3	259646.77678200	3744007.4379000
G11CG10005	Maxey Range Complex	Grenade Area	20130910	CD	Chain Links	4	259647.60470200	3744008.0404400
G11CG10006	Maxey Range Complex	Grenade Area	20130910	MD	2.36 empty RKT MTR	5	259646.80657200	3744018.7876500
G11CG10007	Maxey Range Complex	Grenade Area	20130910	CD	Nail Pit	5	259647.98321700	3744010.8227500
G11CG10008	Maxey Range Complex	Grenade Area	20130910	CD	Chains Links	5	259647.83515100	3744015.2559800
G11CG10009	Maxey Range Complex	Grenade Area	20130910	MD	Frag	4	259657.05655600	3744011.4070500
G11CG10010	Maxey Range Complex	Grenade Area	20130910	CD	Nail Pit	3	259646.62934100	3744011.8799700
G11CG10011	Maxey Range Complex	Grenade Area	20130910	MD	Frag	3	259654.41451700	3744015.0033200
G11CG10012	Maxey Range Complex	Grenade Area	20130910	CD	Scrap Metal	10	259650.57651600	3744007.9327200
G11CG10013	Maxey Range Complex	Grenade Area	20130910	CD	Nail Pit	10	259653.06275400	3744009.6733700
G11CG10014	Maxey Range Complex	Grenade Area	20130910	CD	Nail Pit	10	259647.11727000	3744009.9530500
G11CG10015	Maxey Range Complex	Grenade Area	20130910	MD	Frag	3	259648.54073400	3744016.0259900
G11CG10016	Maxey Range Complex	Grenade Area	20130910	CD	Nail Pit	4	259648.67320000	3744014.7905400
G11CG10017	Maxey Range Complex	Grenade Area	20130910	MD	Frag	4	259653.97740600	3744021.5470400
G11CG10018	Maxey Range Complex	Grenade Area	20130910	CD	Nail Pit	3	259642.55421900	3744009.3431900
G11CG10019	Maxey Range Complex	Grenade Area	20130910	CD	Nail Pit/Wire	6	259656.13719400	3744020.7750800
G11CG10020	Maxey Range Complex	Grenade Area	20130910	CD	Nail Pit	4	259645.75885600	3744012.0881600
G11CG10021	Maxey Range Complex	Grenade Area	20130910	CD	Nail Pit	3	259644.81015300	3744009.4653900
G16AT001	Maxey Range Complex	Grenade Area	20130808	MEC	2.36 Rocket	0	260597.00000000	3743997.0000000
G18AG10001	Maxey Range Complex	Grenade Area	20130913	CD	Rolls of wire	0	259663.75906300	3744487.8790600
G18AG10002	Maxey Range Complex	Grenade Area	20130913	CD	Roll of wire	0	259665.29038100	3744497.1009400
G18AG10003	Maxey Range Complex	Grenade Area	20130913	CD	Barb Wire	3	259659.20097400	3744492.6035900
G18AG10004	Maxey Range Complex	Grenade Area	20130913	CD	Barb Wire	1	259654.71536800	3744485.8436100
G18AG10005	Maxey Range Complex	Grenade Area	20130913	S	Seed	3	259652.98732200	3744491.3905600
G18AG10006	Maxey Range Complex	Grenade Area	20130913	CD	Barb Wire	2	259658.57613200	3744492.3634600
G18AG10007	Maxey Range Complex	Grenade Area	20130913	CD	Barb Wire	1	259659.99797400	3744487.1889400
G18AG10008	Maxey Range Complex	Grenade Area	20130913	CD	Barb Wire	0	259652.00917200	3744486.1666800
G18AG10009	Maxey Range Complex	Grenade Area	20130913	MD	Grenade Pull pin	0	259662.52925700	3744485.4252800
G18AG10010	Maxey Range Complex	Grenade Area	20130913	CD	Barb Wire	3	259654.61273300	3744499.9150700
G18AG10011	Maxey Range Complex	Grenade Area	20130913	CD	Barb Wire	1	259663.10576300	3744485.4351700
G18AG10012	Maxey Range Complex	Grenade Area	20130913	CD	Barb Wire	2	259651.08568800	3744495.3692500
G18AG10013	Maxey Range Complex	Grenade Area	20130913	CD	Barb Wire	3	259661.18977500	3744493.7278600
G18AG10014	Maxey Range Complex	Grenade Area	20130913	CD	Barb Wire	1	259660.21005700	3744485.7019000
G18AG10015	Maxey Range Complex	Grenade Area	20130913	CD	Barb Wire	1	259653.19740000	3744494.4782100
G18AG10016	Maxey Range Complex	Grenade Area	20130913	MD	Grenade Pull pin	3	259655.67072500	3744499.7767800
G18AG10017	Maxey Range Complex	Grenade Area	20130913	CD	Barb Wire	4	259658.05589200	3744490.4562800
G18AG10018	Maxey Range Complex	Grenade Area	20130913	CD	Barb Wire	0	259659.00738800	3744493.8027800
G18AG10019	Maxey Range Complex	Grenade Area	20130913	MD	Grenade Pull pin	6	259664.64062700	3744488.7336500
G18AG10020	Maxey Range Complex	Grenade Area	20130913	CD	Wire	2	259651.00676600	3744486.5942400
G18AG10021	Maxey Range Complex	Grenade Area	20130913	CD	Wire	4	259651.98547700	3744499.7148900
G18AG10022	Maxey Range Complex	Grenade Area	20130913	CD	Wire	5	259652.71374300	3744486.5269700
G18AG10023	Maxey Range Complex	Grenade Area	20130913	MD	Grenade Pull pin	3	259649.61351200	3744491.7615800
G18AG10024	Maxey Range Complex	Grenade Area	20130913	MD	Grenade Pull pin	4	259648.94027200	3744491.5854600
G18AG10025	Maxey Range Complex	Grenade Area	20130913	CD	Barb Wire	8	259657.18140400	3744490.0707300
G18AG10026	Maxey Range Complex	Grenade Area	20130913	CD	Barb Wire	3	259663.87511100	3744489.0739900
G18AG10027	Maxey Range Complex	Grenade Area	20130913	CD	Barb Wire	2	259649.92111400	3744490.6364400
G18AG10028	Maxey Range Complex	Grenade Area	20130913	CD	Wire	1	259653.46572600	3744495.1093300
G18AG20001	Maxey Range Complex	Grenade Area	20130913	S	Seed	1	260835.87842300	3744006.8053100
G18AG20002	Maxey Range Complex	Grenade Area	20130913	CD	Nail	1	260844.77900200	3744003.4320000
G19CG10001	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	0	259773.28254100	3744075.6484300
G19CG10002	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	1	259775.14884100	3744076.7052300
G19CG10003	Maxey Range Complex	Grenade Area	20130910	CD	Cast Iron Pot	36	259766.91684300	3744076.0644500
G19CG10004	Maxey Range Complex	Grenade Area	20130910	CD	Wire	1	259773.34724300	3744078.6543300
G19CG10005	Maxey Range Complex	Grenade Area	20130910	CD	Metal Stake	6	259772.96049500	3744069.9975300
G19CG10006	Maxey Range Complex	Grenade Area	20130910	S	Seed	3	259757.83484400	3744074.1993500
G19CG10007	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	2	259771.89084100	3744073.5725000
G19CG10008	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	3	259771.13237000	3744074.2357800
G19CG10009	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	0	259764.85204800	3744077.1929500
G19CG10010	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	3	259770.41677600	3744082.9933800
G19CG10011	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	1	259773.89774000	3744077.3929200
G19CG10012	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	2	259776.59307800	3744083.2462800
G19CG10013	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	0	259770.20829200	3744076.2499500
G19CG10014	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	2	259773.44080000	3744082.6348400
G19CG10015	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	0	259765.46288100	3744075.0538900
G19CG10016	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	0	259762.92226600	3744075.1220800
G19CG10017	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	4	259761.37329600	3744074.9774200
G19CG10018	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	3	259771.27959500	3744069.8300500
G19CG10019	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	0	259762.22590900	3744073.2023000
G19CG10020	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	0	259765.84052600	3744073.4501000
G19CG10021	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	0	259761.95920600	3744073.9784700
G19CG10022	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	0	259764.82225300	3744072.9831000
G23BG10001	Maxey Range Complex	Grenade Area	20130909	S	Seed	6	259911.72316900	3744652.7900500
G23BG10002	Maxey Range Complex	Grenade Area	20130909	MD	Frag	4	259912.55364200	3744660.0812700

G23BG10003	Maxey Range Complex	Grenade Area	20130909	CD	Nail Pit	3	259918.45178400	3744661.6199900
G23BG10004	Maxey Range Complex	Grenade Area	20130909	MD	60mm Tail Boom	6	259907.36013300	3744652.8944200
G23BG10005	Maxey Range Complex	Grenade Area	20130909	GEO	Hot Rocks	5	259909.52791400	3744651.6260700
G23BG10006	Maxey Range Complex	Grenade Area	20130909	MD	30cal Bullet	3	259912.62311700	3744657.5668900
G23BG10007	Maxey Range Complex	Grenade Area	20130909	CD	Nail Pit	3	259920.84890500	3744661.8420200
G23BG10008	Maxey Range Complex	Grenade Area	20130909	CD	Nail Pit	3	259918.37425100	3744662.7670700
G23BG10009	Maxey Range Complex	Grenade Area	20130909	CD	Nail Pit	3	259920.62181000	3744661.3112300
G23BG10010	Maxey Range Complex	Grenade Area	20130909	CD	Nail Pit	3	259916.70911300	3744661.7015700
G23BG10011	Maxey Range Complex	Grenade Area	20130909	CD	Nail Pit	4	259913.28300600	3744655.1978800
G23BG10012	Maxey Range Complex	Grenade Area	20130909	CD	Barb Wire	5	259910.23300700	3744650.7393000
G23BG10013	Maxey Range Complex	Grenade Area	20130909	CD	Nail Pit	4	259912.01808300	3744662.8145500
G23BG10014	Maxey Range Complex	Grenade Area	20130909	CD	Nail Pit	3	259920.48531500	3744659.9483100
G23BG10015	Maxey Range Complex	Grenade Area	20130909	CD	Trash Pit	4	259920.96691200	3744664.7571400
G23BG10016	Maxey Range Complex	Grenade Area	20130909	CD	Nail Pit	4	259918.44885000	3744654.4846300
G23BG10017	Maxey Range Complex	Grenade Area	20130909	GEO	Hot Rocks	3	259921.01569400	3744650.8245400
G23BG10018	Maxey Range Complex	Grenade Area	20130909	CD	Nail Pit	3	259907.30924100	3744658.5935600
G29CG10001	Maxey Range Complex	Grenade Area	20130910	CD	Rusted 50 Gal Drum	0	259676.15911900	3744192.9274300
G29CG10002	Maxey Range Complex	Grenade Area	20130910	S	Seed	3	259668.90022400	3744187.1077000
G29CG10003	Maxey Range Complex	Grenade Area	20130910	MD	Frag Pit	10	259672.60937900	3744194.7927500
G29CG10004	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	4	259670.22116800	3744198.0987100
G29CG10005	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	10	259672.72126800	3744195.3762500
G29CG10006	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	3	259676.49027900	3744194.4473600
G29CG10007	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	3	259676.39130800	3744193.9931100
G29CG10008	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	6	259681.35755700	3744195.2436700
G29CG10009	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	3	259674.04532100	3744194.0912500
G29CG10010	Maxey Range Complex	Grenade Area	20130910	MD	Frag Pit	6	259678.42857200	3744189.2260300
G29CG10011	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	12	259670.80695200	3744197.0585500
G29CG10012	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	8	259675.97166700	3744195.7357000
G29CG10013	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	4	259671.55316100	3744197.6339700
G29CG10014	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	0	259677.37505200	3744195.3407400
G29CG10015	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	3	259679.85969100	3744192.6518600
G29CG10016	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	10	259670.32859900	3744196.1267500
G29CG10017	Maxey Range Complex	Grenade Area	20130910	MD	Frag Pit	8	259680.65776600	3744191.9589000
G29CG10018	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	12	259673.11805900	3744197.4455200
G29CG10019	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	10	259673.64523700	3744196.0506500
G29CG10020	Maxey Range Complex	Grenade Area	20130910	MD	60mm Tail Boom	12	259666.13029800	3744192.2241200
G29CG10021	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	3	259667.18523900	3744191.5143800
G29CG10022	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	0	259678.36367900	3744195.6889100
G29CG10023	Maxey Range Complex	Grenade Area	20130910	MD	Frag	3	259679.18508600	3744186.0579800
G29CG10024	Maxey Range Complex	Grenade Area	20130910	MD	Frag	3	259669.51496200	3744195.0413000
G29CG10025	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	2	259680.44305900	3744194.3094600
G29CG10026	Maxey Range Complex	Grenade Area	20130910	MD	Frag	2	259678.79870200	3744194.1105800
G29CG20001	Maxey Range Complex	Grenade Area	20130910	S	Seed	4	259877.96053800	3744182.3837200
G29CG20002	Maxey Range Complex	Grenade Area	20130910	CD	Trash Pit	2	259868.64074800	3744188.4429600
G29CG20003	Maxey Range Complex	Grenade Area	20130910	CD	Trash Pit	3	259877.16399700	3744175.7398600
G29CG20004	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	2	259867.21853300	3744182.5347900
G29CG20005	Maxey Range Complex	Grenade Area	20130910	CD	Trash Pit	3	259870.00133300	3744188.4236400
G29CG20006	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	3	259866.61166100	3744183.0531000
G29CG20007	Maxey Range Complex	Grenade Area	20130910	CD	Trash Pit	2	259868.81459500	3744189.2596600
G29CG20008	Maxey Range Complex	Grenade Area	20130910	CD	Can Lid	0	259878.31622600	3744179.6921200
G29CG20009	Maxey Range Complex	Grenade Area	20130910	MD	Frag	3	259867.67321200	3744175.3946400
G29CG20010	Maxey Range Complex	Grenade Area	20130910	CD	Metal Cable	0	259862.09699200	3744176.7907800
G29CG20011	Maxey Range Complex	Grenade Area	20130910	MD	Frag	4	259873.04818800	3744174.7729800
G29CG20012	Maxey Range Complex	Grenade Area	20130910	CD	Trash Pit	3	259873.35548000	3744186.3403000
G29CG20013	Maxey Range Complex	Grenade Area	20130910	MD	Frag	3	259874.63985800	3744174.6740300
G29CG20014	Maxey Range Complex	Grenade Area	20130910	CD	Barb Wire	2	259873.09966100	3744185.7905900
G29CG20015	Maxey Range Complex	Grenade Area	20130910	CD	Trash Pit	2	259868.57232100	3744187.3500300
G29CG20016	Maxey Range Complex	Grenade Area	20130910	MD	Frag	5	259873.15655800	3744185.1419900
G29CG20017	Maxey Range Complex	Grenade Area	20130910	MD	Frag	3	259876.93379100	3744180.1672700
G29CG20018	Maxey Range Complex	Grenade Area	20130910	MD	30 cal bullet	4	259868.85988700	3744182.2439600
G29CG20019	Maxey Range Complex	Grenade Area	20130910	CD	Can	0	259874.52729500	3744184.4560700
G29CG20020	Maxey Range Complex	Grenade Area	20130910	MD	30 cal Brass	2	259869.22130800	3744184.0565200
G29CG20021	Maxey Range Complex	Grenade Area	20130910	CD	Trash Pit	1	259864.86382000	3744184.1888300
G29CG20022	Maxey Range Complex	Grenade Area	20130910	MD	Frag	3	259872.75789600	3744179.1052400
G29CG20023	Maxey Range Complex	Grenade Area	20130910	CD	Bolt	10	259870.31462600	3744181.8309800
G30AG10001	Maxey Range Complex	Grenade Area	20130913	CD	Plow Blade	6	260411.66748200	3744146.0970200
G30AG10002	Maxey Range Complex	Grenade Area	20130913	S	seed	3	260414.99847700	3744143.3617500
G30AG10003	Maxey Range Complex	Grenade Area	20130913	MD	Practice MKII Grenade	1	260419.84839700	3744140.2590900
G30AG10004	Maxey Range Complex	Grenade Area	20130913	CD	Barb Wire	2	260414.69595500	3744146.9807100
G30AG10005	Maxey Range Complex	Grenade Area	20130913	MD	Expended Grenade Fuze	3	260414.63068100	3744146.4376700
G33AG10003	Maxey Range Complex	Grenade Area	20130913	CD	Plow blade Part	7	260671.07942500	3744161.5169200
G33AG10006	Maxey Range Complex	Grenade Area	20130913	S	Seed	1	260662.87219100	3744161.1932100
G33AG10007	Maxey Range Complex	Grenade Area	20130913	CD	Barb Wire	0	260669.72977400	3744162.7480400
G33AG10013	Maxey Range Complex	Grenade Area	20130913	CD	Barb Wire	2	260671.68172000	3744164.0004800
G33AG10017	Maxey Range Complex	Grenade Area	20130913	CD	Scrap Metal	4	260662.01930900	3744159.9112200

G33AG10022	Maxey Range Complex	Grenade Area	20130913	CD	Scrap Metal	2	260672.53108800	3744173.6127800
G33AG10028	Maxey Range Complex	Grenade Area	20130913	CD	Barb Wire	1	260674.17246800	3744162.3142400
G33AG10035	Maxey Range Complex	Grenade Area	20130913	CD	Scrap Metal	3	260670.75383400	3744165.0965300
G33AG10040	Maxey Range Complex	Grenade Area	20130913	CD	Scrap Metal	2	260674.71563000	3744160.7778200
G33AG10047	Maxey Range Complex	Grenade Area	20130913	CD	Wire & cotter pin	3	260664.17299600	3744167.1940300
G33AG10051	Maxey Range Complex	Grenade Area	20130913	CD	Scrap Metal	2	260663.99317700	3744173.5477000
G33AG10054	Maxey Range Complex	Grenade Area	20130913	CD	Scrap Metal	2	260674.63448700	3744165.8633900
G3CG10001	Maxey Range Complex	Grenade Area	20130909	S	Seed	3	259766.25355200	3743927.8226500
G3CG10002	Maxey Range Complex	Grenade Area	20130909	CD	Barb Wire	3	259762.17211500	3743928.1741800
G3CG10003	Maxey Range Complex	Grenade Area	20130909	CD	Nails	3	259763.59916600	3743938.4832500
G3CG10004	Maxey Range Complex	Grenade Area	20130909	CD	Nails	3	259776.88460300	3743926.5691100
G3CG10005	Maxey Range Complex	Grenade Area	20130909	CD	Nails	3	259764.52165000	3743937.9294400
G6BG10001	Maxey Range Complex	Grenade Area	20130909	CD	Barb Wire	0	259656.21366000	3744491.3697100
G6BG10002	Maxey Range Complex	Grenade Area	20130909	CD	Barb Wire	0	259653.24576400	3744490.4978700
G6BG10003	Maxey Range Complex	Grenade Area	20130909	CD	Wire	0	259656.76821000	3744488.6601300
G6BG10004	Maxey Range Complex	Grenade Area	20130909	CD	Barb Wire	0	259650.29304700	3744487.1941400
G6BG10005	Maxey Range Complex	Grenade Area	20130909	S	Seed	4	259663.75379000	3744495.4217500
G6BG10006	Maxey Range Complex	Grenade Area	20130909	CD	Barb Wire	2	259651.00676600	3744486.5942400
G6BG10007	Maxey Range Complex	Grenade Area	20130909	CD	Barb Wire	0	259654.61045200	3744491.4013300
G6BG10008	Maxey Range Complex	Grenade Area	20130909	MD	Frag	2	259649.52498200	3744493.6493400
G6BG10009	Maxey Range Complex	Grenade Area	20130909	MD	Frag	3	259648.94186100	3744487.7805400
G6BG10010	Maxey Range Complex	Grenade Area	20130909	CD	Wire	2	259654.36701200	3744486.0527800
G6BG10011	Maxey Range Complex	Grenade Area	20130909	CD	Barb Wire	0	259655.22347800	3744490.4522800
G6BG10012	Maxey Range Complex	Grenade Area	20130909	CD	Barb Wire	0	259649.28194200	3744486.6707400
G6BG10013	Maxey Range Complex	Grenade Area	20130909	CD	Scrap Metal	0	259655.48128400	3744495.4845300
G6BG10014	Maxey Range Complex	Grenade Area	20130909	MD	Frag	6	259662.73182900	3744492.9968300
G6BG10015	Maxey Range Complex	Grenade Area	20130909	CD	Barb Wire	4	259665.52634900	3744498.8386900
G6BG10016	Maxey Range Complex	Grenade Area	20130909	CD	Barb Wire	0	259654.17603700	3744489.3644200
G6BG10017	Maxey Range Complex	Grenade Area	20130909	MD	Frag	3	259655.35194800	3744486.9181500
G6BG10018	Maxey Range Complex	Grenade Area	20130909	CD	Scrap Metal	1	259661.85094600	3744485.4123600
G6BG10019	Maxey Range Complex	Grenade Area	20130909	CD	Can	0	259658.86105400	3744487.8824800
G6BG10020	Maxey Range Complex	Grenade Area	20130909	MD	Frag	4	259654.79021700	3744488.3222500
G6BG10021	Maxey Range Complex	Grenade Area	20130909	MD	Frag	3	259664.68509500	3744489.2409800
G6BG10022	Maxey Range Complex	Grenade Area	20130909	MD	Frag	5	259659.38184900	3744491.2513300
G6BG10023	Maxey Range Complex	Grenade Area	20130909	MD	Frag	5	259661.77874700	3744491.5090500
W10A2G10001	Maxey Range Complex	West Area	20130816	MD	Frag	4	253711.77200000	3746773.1370000
W10A2G10002	Maxey Range Complex	West Area	20130816	MD	Frag	6	253699.25089100	3746783.6995300
W11A2G10001	Maxey Range Complex	West Area	20130814	MD	N/A	4	252703.18677600	3746660.6118800
W11A2G10002	Maxey Range Complex	West Area	20130814	MD	N/A	6	252709.67642700	3746651.7054900
W11A2G10003	Maxey Range Complex	West Area	20130814	MD	N/A	6	252704.92247600	3746658.7614400
W11A2G10004	Maxey Range Complex	West Area	20130814	MD	N/A	0	252718.40185400	3746652.3059900
W11A2G10005	Maxey Range Complex	West Area	20130814	MD	N/A	2	252702.37217500	3746660.5675100
W11A2G10006	Maxey Range Complex	West Area	20130814	MD	N/A	2	252715.95948300	3746662.1091200
W11A2G10007	Maxey Range Complex	West Area	20130814	MD	N/A	3	252715.61282800	3746659.4110100
W11A2G10008	Maxey Range Complex	West Area	20130814	MD	N/A	4	252711.43019400	3746655.1880100
W11A2G10009	Maxey Range Complex	West Area	20130814	MD	N/A	4	252707.82014400	3746664.9730900
W11A2G10010	Maxey Range Complex	West Area	20130814	MD	N/A	2	252705.66297300	3746651.5225100
W11A2G10011	Maxey Range Complex	West Area	20130814	MD	N/A	2	252709.79160200	3746659.0573600
W11A2G10012	Maxey Range Complex	West Area	20130814	MD	N/A	2	252702.35284100	3746663.1624500
W13A2G10001	Maxey Range Complex	West Area	20130815	MD	Frag	6	253320.37071000	3746448.8865600
W13A2G10002	Maxey Range Complex	West Area	20130815	MD	Frag	6	253317.41818100	3746448.1833600
W13A2G10003	Maxey Range Complex	West Area	20130815	MD	Frag	6	253318.89195600	3746456.8307500
W13A2G10004	Maxey Range Complex	West Area	20130815	MD	Frag	6	253313.92493900	3746451.0997700
W13A2G10005	Maxey Range Complex	West Area	20130815	MD	Frag	6	253307.58569500	3746459.8297900
W13A2G10006	Maxey Range Complex	West Area	20130815	MD	Frag	6	253322.95561500	3746454.8705700
W13A2G10007	Maxey Range Complex	West Area	20130815	MD	Frag	6	253312.20921200	3746449.2504700
W13A2G10008	Maxey Range Complex	West Area	20130815	MD	Frag	6	253317.63244700	3746455.9992700
W13A2G10009	Maxey Range Complex	West Area	20130815	MD	Frag	8	253311.28349900	3746447.3837800
W13A2G10010	Maxey Range Complex	West Area	20130815	MD	Frag	6	253319.70241600	3746458.7911200
W13A2G10011	Maxey Range Complex	West Area	20130815	MD	Frag	4	253309.70869100	3746460.3859300
W13A2G10012	Maxey Range Complex	West Area	20130815	MD	Frag	10	253319.11010100	3746460.6677700
W13A2G10013	Maxey Range Complex	West Area	20130815	MD	Frag	6	253321.93155900	3746449.0212200
W13A2G10014	Maxey Range Complex	West Area	20130815	MD	Frag	6	253311.40784000	3746458.7387900
W13A2G10015	Maxey Range Complex	West Area	20130815	CD	Tin Can	1	253320.77414000	3746458.0785700
W13A2G10016	Maxey Range Complex	West Area	20130815	MD	Frag	1	253318.20093700	3746454.5246200
W13A2G10017	Maxey Range Complex	West Area	20130815	CD	Wire	1	253317.98770000	3746450.9193400
W13A2G10018	Maxey Range Complex	West Area	20130815	MD	Frag	6	253310.63484700	3746457.8740400
W13A2G10019	Maxey Range Complex	West Area	20130815	MD	Frag	4	253308.74558700	3746458.7741300
W13A2G10020	Maxey Range Complex	West Area	20130815	MD	Frag	4	253322.38795700	3746453.9980200
W13A2G10021	Maxey Range Complex	West Area	20130815	MD	Frag	2	253312.63535200	3746450.2708400
W13A2G10022	Maxey Range Complex	West Area	20130815	MD	Frag	4	253316.76656500	3746460.1610200
W13A2G10023	Maxey Range Complex	West Area	20130815	MD	Frag	6	253310.26590400	3746460.9756300
W13A2G10024	Maxey Range Complex	West Area	20130815	MD	Frag	6	253318.21506100	3746458.5670000
W13A2G10025	Maxey Range Complex	West Area	20130815	MD	Frag	4	253312.86102300	3746460.2780700
W13A2G10026	Maxey Range Complex	West Area	20130815	MD	Frag	4	253315.54238500	3746448.8997200

W13A2G10027	Maxey Range Complex	West Area	20130815	MD	Frag	4	253310.91375000	3746450.6244000
W16A2G10001	Maxey Range Complex	West Area	20130813	CD	Barb Wire	4	251791.67311500	3746118.6652100
W16A2G10002	Maxey Range Complex	West Area	20130813	CD	Barb Wire	0	251791.04453800	3746119.0993100
W16A2G10003	Maxey Range Complex	West Area	20130813	CD	Barb Wire	2	251793.04798800	3746118.6508000
W16A2G10004	Maxey Range Complex	West Area	20130813	CD	Barb Wire	0	251780.58391100	3746118.9219200
W16A2G10005	Maxey Range Complex	West Area	20130813	CD	Barb Wire	2	251793.14590000	3746119.2747500
W16A2G10006	Maxey Range Complex	West Area	20130813	CD	Barb Wire	2	251783.98590600	3746119.0718100
W16A2G10007	Maxey Range Complex	West Area	20130813	CD	Barb Wire	4	251787.85959200	3746119.3886900
W16A2G10008	Maxey Range Complex	West Area	20130813	CD	Barb Wire	4	251782.08368600	3746119.2779000
W16A2G10009	Maxey Range Complex	West Area	20130813	CD	Barb Wire	4	251788.96481600	3746119.0266500
W16A2G10010	Maxey Range Complex	West Area	20130813	CD	Barb Wire	2	251784.83468500	3746119.1109700
W16A2G10011	Maxey Range Complex	West Area	20130813	CD	Barb Wire	4	251794.40684500	3746117.8767000
W18A2T001	Maxey Range Complex	West Area	20130618	MEC	76 mm APHE	0	253302.00000000	3745958.0000000
W18A2G10001	Maxey Range Complex	West Area	20130823	MD	Nose Cap of 76mm	6	253354.20174500	3745947.0808000
W18A2G10002	Maxey Range Complex	West Area	20130823	S	Seed	3	253360.49419400	3745954.3163100
W18A2G10003	Maxey Range Complex	West Area	20130823	MD	Nose Cap of 76mm	6	253355.15087700	3745958.7034700
W18A2G10004	Maxey Range Complex	West Area	20130823	MD	Nose Cap of 76mm	12	253354.95284900	3745954.7622000
W18A2G10005	Maxey Range Complex	West Area	20130823	MD	Frag	3	253363.04250700	3745954.4720300
W18A2G10006	Maxey Range Complex	West Area	20130823	MD	37mm TP	6	253359.69913600	3745956.0994000
W18A2G10007	Maxey Range Complex	West Area	20130823	MD	Nose Cap of 76mm	8	253363.51117000	3745959.1046600
W18A2G20001	Maxey Range Complex	West Area	20130823	MD	Frag	6	252630.31688800	3745973.9918700
W18A2G20002	Maxey Range Complex	West Area	20130823	S	Seed	4	252605.75035100	3745959.6151600
W18A2G20003	Maxey Range Complex	West Area	20130823	MD	Frag	4	252623.25779500	3745948.8403800
W18A2G20004	Maxey Range Complex	West Area	20130823	NC	N/A	0	252596.59200300	3745948.7800000
W18A2G20005	Maxey Range Complex	West Area	20130823	MD	Frag	1	252625.38587200	3745977.5186400
W19A1G10001	Maxey Range Complex	West Area	20130910	CD	Scrap Metal	0	255239.52991200	3745843.9439300
W19A1G10002	Maxey Range Complex	West Area	20130910	CD	Tractor Part	4	255228.19158200	3745856.0910600
W19A1G10003	Maxey Range Complex	West Area	20130910	S	Seed	1	255229.75130300	3745847.6552200
W19A1G10004	Maxey Range Complex	West Area	20130910	CD	Bundle of Wire	1	255232.27442000	3745853.9959300
W19A1G10005	Maxey Range Complex	West Area	20130910	CD	Wire	1	255231.54551500	3745853.4695700
W19A1G10006	Maxey Range Complex	West Area	20130910	CD	Metal File	3	255234.23297700	3745858.0303600
W19A1G10007	Maxey Range Complex	West Area	20130910	CD	Large cotter pin	1	255237.43157600	3745848.7167200
W47A2G10029	Maxey Range Complex	West Area	20130830	MD	Frag	6	252319.49820000	3743047.5736300
W47A2G10030	Maxey Range Complex	West Area	20130830	MD	Frag	4	252312.60821900	3743046.2856500
W47A2G10031	Maxey Range Complex	West Area	20130830	MD	Frag	3	252315.31854100	3743046.0304500
W47A2G10032	Maxey Range Complex	West Area	20130830	MD	Frag	4	252315.36145900	3743042.8466400
W47A2G10033	Maxey Range Complex	West Area	20130830	MD	Frag	2	252325.51587800	3743046.3941600
W47A2G10034	Maxey Range Complex	West Area	20130830	MD	Frag	3	252312.12504100	3743036.2771100
W47A2G10035	Maxey Range Complex	West Area	20130830	MD	Frag	3	252312.35559000	3743048.8142500
W47A2G10036	Maxey Range Complex	West Area	20130830	MD	Frag	3	252316.18622200	3743048.4947200
W47A2G10037	Maxey Range Complex	West Area	20130830	MD	Frag	4	252320.87980900	3743044.2063300
W47A2G10038	Maxey Range Complex	West Area	20130830	MD	Frag	4	252325.51635600	3743041.0892600
W47A2G10039	Maxey Range Complex	West Area	20130830	MD	Frag	3	252325.79228600	3743045.0442600
W47A2G10040	Maxey Range Complex	West Area	20130830	MD	Frag	4	252312.15059700	3743039.4161600
W47A2G10041	Maxey Range Complex	West Area	20130830	MD	Frag	4	252314.10336000	3743037.2654400
W47A2G20001	Maxey Range Complex	West Area	20130904	S	Seed	1	251845.10995800	3743037.6326400
W7A1G10027	Maxey Range Complex	West Area	20130826	NC	N/A	0	254516.19814400	3747063.9055100
W7A1G10028	Maxey Range Complex	West Area	20130826	CD	Barb Wire	1	254512.62453200	3747068.7280000
W7A1G10029	Maxey Range Complex	West Area	20130826	CD	Barb Wire	1	254515.92341600	3747064.6160700
W7A1G10030	Maxey Range Complex	West Area	20130826	CD	Barb Wire	2	254509.49842400	3747070.7243400
W7A1G10031	Maxey Range Complex	West Area	20130826	CD	Barb Wire	1	254509.78204200	3747065.5848500
W7A1G10032	Maxey Range Complex	West Area	20130826	CD	Barb Wire	3	254517.06485400	3747069.5412300
W7A1G10033	Maxey Range Complex	West Area	20130826	CD	Barb Wire	2	254516.41544800	3747066.9056600
W7A1G10034	Maxey Range Complex	West Area	20130826	CD	Barb Wire	1	254503.69111500	3747061.9055300
W7A1G10035	Maxey Range Complex	West Area	20130826	CD	Barb Wire	2	254515.20860800	3747073.7626400
W7A1G10036	Maxey Range Complex	West Area	20130826	CD	Barb Wire	1	254514.50003900	3747072.4385900
W7A1G10037	Maxey Range Complex	West Area	20130826	CD	Barb Wire	1	254510.64038700	3747066.1603300
W7A1G10038	Maxey Range Complex	West Area	20130826	CD	Barb Wire	2	254507.92462400	3747073.1521600
W7A1G10039	Maxey Range Complex	West Area	20130826	CD	Barb Wire	1	254517.64712700	3747059.0642700
W7A1G10040	Maxey Range Complex	West Area	20130826	CD	Barb Wire	2	254508.69200400	3747072.1552200
W7A1G10041	Maxey Range Complex	West Area	20130826	NC	N/A	0	254507.21455800	3747068.2427800
W7A1G10042	Maxey Range Complex	West Area	20130826	CD	Barb Wire	2	254516.50975800	3747067.8998900
W7A1G10043	Maxey Range Complex	West Area	20130826	CD	Barb Wire	1	254505.80743100	3747071.1716900
W7A1G10044	Maxey Range Complex	West Area	20130826	NC	N/A	0	254510.84873200	3747072.5514900
W7A1G10045	Maxey Range Complex	West Area	20130826	CD	Barb Wire	1	254515.35945100	3747071.3030300
W7A2G10001	Maxey Range Complex	West Area	20130814	MD	Frag	4	252241.23899400	3747078.3218800
W7A2G10002	Maxey Range Complex	West Area	20130814	NC	N/A	0	252236.55948300	3747075.9570500
W9A2G10002	Maxey Range Complex	West Area	20130804	MD	Frag	8	253129.89946900	3746844.9600300
W9A2G10016	Maxey Range Complex	West Area	20130814	MD	Frag	6	253135.63407800	3746848.9792200
W9A2G10017	Maxey Range Complex	West Area	20130814	MD	Frag	8	253128.56274900	3746853.7320400
W9A2G10018	Maxey Range Complex	West Area	20130804	MD	Frag	3	253127.79187000	3746856.7635300
W9A2G10022	Maxey Range Complex	West Area	20130804	MD	Frag	8	253129.26574200	3746850.7497500
W9A2G10026	Maxey Range Complex	West Area	20130804	MD	Frag	4	253132.88889400	3746859.2655900
W9A2G10027	Maxey Range Complex	West Area	20130804	MD	Frag	8	253131.62951700	3746847.9954100
W9A2G10028	Maxey Range Complex	West Area	20130804	MD	Frag	7	253132.36701700	3746843.8786400

W9A2G10030	Maxey Range Complex	West Area	20130804	MD	Frag	4	253126.97029000	3746846.2486700
W9A2G10045	Maxey Range Complex	West Area	20130804	MD	Frag	2	253135.25445400	3746858.9889400
W9A2G10046	Maxey Range Complex	West Area	20130804	MD	Frag	6	253130.86828100	3746861.7333200
W9A2G10049	Maxey Range Complex	West Area	20130804	MD	Frag	1	253132.22207900	3746847.7522800
W9A2G10052	Maxey Range Complex	West Area	20130804	MD	Frag	3	253131.94093200	3746862.0472400
W9A2G10071	Maxey Range Complex	West Area	20130814	MD	Frag	4	253133.35867800	3746861.6005100
W9A2G10072	Maxey Range Complex	West Area	20130814	MD	Frag	6	253129.33039200	3746859.7073700
W9A2G10076	Maxey Range Complex	West Area	20130814	MD	Frag	4	253130.75019800	3746862.8597800
W9A2G10080	Maxey Range Complex	West Area	20130814	MD	Frag	7	253128.53194500	3746858.2499000
W9A2G10081	Maxey Range Complex	West Area	20130814	MD	Frag	6	253125.24390800	3746856.9513000
W9A2G10086	Maxey Range Complex	West Area	20130814	MD	Frag	3	253132.22069500	3746857.5390200
W9A2G10091	Maxey Range Complex	West Area	20130814	MD	Frag	6	253133.86125200	3746855.0396400
E44A8G10015	Maxey Range Complex	East Area	20130909	CD	Barb Wire	6	260209.04101900	3745314.7412200
E14A1G10004	Maxey Range Complex	East Area	20130919	CD	Barb Wire	0	261866.26792300	3748004.7030800
E14A1G10035	Maxey Range Complex	East Area	20130919	CD	Trash Pit	3	261870.97388000	3748012.4206300
E62A1G10027	Maxey Range Complex	East Area	20130918	CD	Barb Wire	2	263153.74224800	3743858.0021400
E14A1G10020	Maxey Range Complex	East Area	20130919	CD	Scrap Metal	3	261865.52956300	3748014.9473700
E43A2G10047	Maxey Range Complex	East Area	20190917	CD	Nails	3	264802.59492200	3745425.6167200
E55A1G10018	Maxey Range Complex	East Area	20130918	CD	Barb Wire	0	262990.01433200	3744424.6204500
E42A3G10031	Maxey Range Complex	East Area	20130916	CD	Barb Wire	4	264801.73294500	3745418.4312700
E5BA1G10080	Maxey Range Complex	East Area	20130920	CD	Nails	3	262294.91612600	3748788.1311400
E62A1G10006	Maxey Range Complex	East Area	20130918	CD	Barb Wire	0	263149.25112500	3743859.3135200
E14A1G10045	Maxey Range Complex	East Area	20130919	CD	Nail Pit	2	261869.41858100	3748006.7128800
E14A1G10033	Maxey Range Complex	East Area	20130919	CD	Scrap Metal	3	261876.37643000	3748012.0286500
E43A2G10024	Maxey Range Complex	East Area	20190917	CD	Nails	3	264803.25974000	3745412.7351900
E42A1G10004	Maxey Range Complex	East Area	20130917	CD	Barb Wire	1	254724.20469400	3743528.7436600
E4BA2G10028	Maxey Range Complex	East Area	20130920	CD	Barb Wire	1	262623.84081900	3748871.9994100
E62A1G10005	Maxey Range Complex	East Area	20130918	CD	Barb Wire	0	263150.73764000	3743859.1824600
E55A1G10006	Maxey Range Complex	East Area	20130918	CD	Barb Wire	0	262992.57629300	3744431.2269500
E44A8G10030	Maxey Range Complex	East Area	20130909	CD	Nail Pit	3	260198.52765100	3745316.1751500
E44A8G10035	Maxey Range Complex	East Area	20130909	CD	Barb Wire	4	260207.63379200	3745314.8594700
E14A1G10043	Maxey Range Complex	East Area	20130919	CD	Scrap Metal	3	261872.38751000	3748002.7666600
E14A1G10014	Maxey Range Complex	East Area	20130919	CD	Metal Springs	0	261868.65356000	3748013.3046300
E14A1G10023	Maxey Range Complex	East Area	20130919	CD	Trash Pit	3	261879.40247600	3748006.7752700
E14A1G10030	Maxey Range Complex	East Area	20130919	CD	Trash Pit	3	261870.20682800	3748013.7221400
E5BA1G10033	Maxey Range Complex	East Area	20130920	CD	Scrap Metal	2	262303.12062200	3748782.3403200
E24A1G10006	Maxey Range Complex	East Area	20130917	CD	Scrap Metal	1	264343.72973200	3747036.9770800
E52A3G10022	Maxey Range Complex	East Area	20130918	CD	Wire	2	261392.44424900	3744604.5355300
E44A8G10003	Maxey Range Complex	East Area	20130909	CD	Barb Wire	2	260209.99736300	3745310.6597100
E52A3G10034	Maxey Range Complex	East Area	20130918	CD	Barb Wire	2	261396.61300100	3744607.7142400
E5BA1G10058	Maxey Range Complex	East Area	20130920	CD	Nails	3	262299.25182300	3748779.4160100
E43A2G10021	Maxey Range Complex	East Area	20190917	CD	Nails	1	264804.77553600	3745413.7474000
E5BA1G10070	Maxey Range Complex	East Area	20130920	CD	Nails	3	262305.07593700	3748781.4263300
E62A1G10028	Maxey Range Complex	East Area	20130918	CD	Barb Wire	2	263159.66079400	3743857.2034000
E43A2G10022	Maxey Range Complex	East Area	20190917	CD	Scrap Metal	3	264806.67092200	3745415.1160000
E55A1G10014	Maxey Range Complex	East Area	20130918	CD	Barb Wire	1	262995.02129300	3744432.2167400
E4BA2G10022	Maxey Range Complex	East Area	20130920	CD	Barb Wire	1	262624.21562300	3748858.0051800
E55A1G10024	Maxey Range Complex	East Area	20130918	CD	Barb Wire	0	262995.91887500	3744431.3754500
E43A2G10015	Maxey Range Complex	East Area	20190917	CD	Nails	3	264810.59687700	3745417.6792900
E42A3G10035	Maxey Range Complex	East Area	20130916	CD	Barb Wire	2	264807.55478700	3745411.7131200
E42A3G10023	Maxey Range Complex	East Area	20130916	CD	Barb Wire	3	264806.89994700	3745420.9125600
E62A1G10031	Maxey Range Complex	East Area	20130918	CD	Barb Wire	0	263157.29396100	3743862.5326800
W19A1G10008	Maxey Range Complex	West Area	20130910	CD	Scrap Metal	3	255231.24924500	3745856.6629700
W19A1G10009	Maxey Range Complex	West Area	20130910	CD	Barb Wire	6	255226.96255300	3745852.5684800
W19A1G10010	Maxey Range Complex	West Area	20130910	CD	Scrap Metal	1	255233.31990200	3745851.1115200
W19A1G10011	Maxey Range Complex	West Area	20130910	CD	Wire	0	255231.28442200	3745847.8993100
W19A1G10012	Maxey Range Complex	West Area	20130910	CD	Scrap Metal	1	255234.14902700	3745850.5588600
W19A1G10013	Maxey Range Complex	West Area	20130910	CD	Plow blade Part	2	255225.98532900	3745854.7223900
W19A1G10014	Maxey Range Complex	West Area	20130910	CD	Scrap Metal	0	255237.56165600	3745855.6850400
W19A1G10015	Maxey Range Complex	West Area	20130910	CD	Scrap Metal	3	255236.83422400	3745855.1439400
W19A1G10016	Maxey Range Complex	West Area	20130910	CD	Wire	3	255242.24508800	3745845.9200000
W19A1G10017	Maxey Range Complex	West Area	20130910	CD	Chain	4	255227.79278300	3745843.6060400
W19A1G10018	Maxey Range Complex	West Area	20130910	MD	30 cal bullet	1	255242.76799800	3745841.5289900
W19A2G10001	Maxey Range Complex	West Area	20130813	MD, S	Seed & Frag	6	250860.87047900	3745831.9979200
W19A2G10002	Maxey Range Complex	West Area	20130813	MD	Frag	6	250849.67017700	3745820.8401800
W20A2T001	Maxey Range Complex	West Area	20130618	MEC	76 mm APHE	0	253176.00000000	3745757.0000000
W20A1G10001	Maxey Range Complex	West Area	20130911	CD	Air craft Alum.	0	254976.57892900	3745762.6759600
W20A1G10002	Maxey Range Complex	West Area	20130911	MD	57MM AP	1	254978.84699300	3745754.0827900
W20A1G10003	Maxey Range Complex	West Area	20130911	CD	Air craft Alum.	0	254993.56928500	3745764.3731500
W20A1G10004	Maxey Range Complex	West Area	20130911	CD	Air craft Alum.	0	254989.27433900	3745760.2908000
W20A1G10005	Maxey Range Complex	West Area	20130911	CD	Air craft Alum.	1	254979.39889200	3745760.8317300
W20A1G10006	Maxey Range Complex	West Area	20130911	CD	Air craft Alum.	0	254990.13568400	3745763.5839000
W20A1G10007	Maxey Range Complex	West Area	20130911	CD	Air craft Alum.	0	254986.01816400	3745760.4521700
W20A1G10008	Maxey Range Complex	West Area	20130911	CD	Air craft Alum.	2	254992.79248200	3745752.0745300
W20A1G10009	Maxey Range Complex	West Area	20130911	CD	Air craft Alum.	0	254983.27121600	3745764.1173600

W21A2G10001	Maxey Range Complex	West Area	20130815	MD	Frag	3	253128.76038000	3745693.7647200
W21A2G10002	Maxey Range Complex	West Area	20130815	MD	Frag	8	253114.90977100	3745684.2835100
W21A2G10003	Maxey Range Complex	West Area	20130815	S	Seed	4	253110.14981700	3745690.0058600
W21A2G10004	Maxey Range Complex	West Area	20130815	MD	Frag	8	253119.76489800	3745673.2311700
W21A2G10005	Maxey Range Complex	West Area	20130815	MD	Frag	4	253127.40473800	3745696.7042000
W21A2G10006	Maxey Range Complex	West Area	20130815	MD	Frag	4	253128.29187700	3745697.2564000
W21A2G10007	Maxey Range Complex	West Area	20130815	MD	Frag	4	253117.47502100	3745689.7582200
W21A2G10008	Maxey Range Complex	West Area	20130815	MD	Frag	3	253121.62296500	3745686.0429000
W21A2G10009	Maxey Range Complex	West Area	20130815	MD	50 Cal	4	253117.83290900	3745674.7399900
W21A2G10010	Maxey Range Complex	West Area	20130815	MD	Frag	0	253128.00184000	3745679.0194300
W21A2G20001	Maxey Range Complex	West Area	20130813	CD	Nail-Wire	8	251648.83868400	3745657.7798800
W21A2G20002	Maxey Range Complex	West Area	20130813	MD	Frag	6	251636.31698700	3745679.8859600
W21A2G20003	Maxey Range Complex	West Area	20130813	MD	Frag	6	251646.85121900	3745670.6242500
W22T1G10001	Maxey Range Complex	West Area	20130819	CD	Barb Wire	0	250321.96007500	3745556.6381800
W22T1G10003	Maxey Range Complex	West Area	20130819	CD	Barb Wire	12	250322.71197500	3745557.3051400
W22T1G10006	Maxey Range Complex	West Area	20130812	CD	Barb Wire	5	250330.98005000	3745554.3875800
W22T1G10008	Maxey Range Complex	West Area	20130923	CD	Barb Wire	4	250330.50539700	3745565.6258900
W22T1G10009	Maxey Range Complex	West Area	20130819	CD	Plow Blade	12	250324.93071500	3745561.8499700
W22T1G10016	Maxey Range Complex	West Area	20130819	CD	Scrap Metal	12	250321.11604500	3745565.5655300
W22T1G10024	Maxey Range Complex	West Area	20130819	CD	Horse Shoe	12	250331.39334300	3745562.0946600
W22T1G10038	Maxey Range Complex	West Area	20130923	CD	Barb Wire	3	250325.51283500	3745563.4727900
W22T1G10040	Maxey Range Complex	West Area	20130819	CD	Scrap Metal	10	250320.94237200	3745561.5171800
W22T1G10042	Maxey Range Complex	West Area	20130819	CD	Scrap Metal	12	250330.46041900	3745558.4359700
W22T1G10051	Maxey Range Complex	West Area	20130819	CD	Wire/Nails	10	250329.62080000	3745555.3059700
W22T1G10052	Maxey Range Complex	West Area	20130819	CD	Metal clamp	1	250332.26496800	3745564.2844500
W22T1G10054	Maxey Range Complex	West Area	20130819	CD	Wire & Bolts	12	250324.46223200	3745560.4604700
W22T1G10058	Maxey Range Complex	West Area	20130923	CD	Barb Wire	3	250324.34491000	3745563.6755800
W22T1G10060	Maxey Range Complex	West Area	20130819	CD	Barb Wire	8	250325.26225500	3745565.8236900
W22T1G10063	Maxey Range Complex	West Area	20130819	CD	Barb Wire	8	250323.17422300	3745560.1526100
W22T1G10064	Maxey Range Complex	West Area	20130819	CD	Wire	6	250329.17246500	3745558.1281100
W23A2G10001	Maxey Range Complex	West Area	20130826	CD	Scrap Metal	0	252862.18380100	3745458.8045000
W23A2G10002	Maxey Range Complex	West Area	20130826	CD	scrap metal/trash	1	252858.54486900	3745464.5185600
W23A2G10003	Maxey Range Complex	West Area	20130826	CD	scrap metal/trash	12	252849.09838400	3745453.6547900
W23A2G10004	Maxey Range Complex	West Area	20130826	CD	Barb Wire	0	252856.94727900	3745455.8556100
W23A2G10005	Maxey Range Complex	West Area	20130826	CD	Scrap Metal	12	252856.26846300	3745456.8334900
W23A2G10006	Maxey Range Complex	West Area	20130826	MD/CD	Frag/Sheet Metal	1	252863.08540800	3745457.0600300
W23A2G10007	Maxey Range Complex	West Area	20130826	CD	Scrap Metal	0	252850.06670400	3745466.1867900
W23A2G10008	Maxey Range Complex	West Area	20130826	CD	Scrap Metal	2	252857.94187900	3745458.2094600
W23A2G10009	Maxey Range Complex	West Area	20130826	S	Seed	1	252858.20060100	3745460.9136700
W23A2G10010	Maxey Range Complex	West Area	20130826	CD	Scrap Metal	3	252863.15650800	3745455.3232300
W23A2G10011	Maxey Range Complex	West Area	20130826	CD	Scrap Metal	0	252848.26903100	3745452.7716800
W23A2G10012	Maxey Range Complex	West Area	20130826	CD	Scrap Metal	9	252853.91587200	3745456.3538900
W23A2G10013	Maxey Range Complex	West Area	20130826	CD	Scrap Metal	1	252862.73982600	3745459.6712600
W23A2G10014	Maxey Range Complex	West Area	20130826	CD	Scrap Metal	0	252848.36705300	3745456.1321500
W23A2G10015	Maxey Range Complex	West Area	20130826	CD	Scrap Metal	6	252849.41461000	3745459.7582400
W23A2G10016	Maxey Range Complex	West Area	20130826	CD	Scrap Metal	1	252849.77641000	3745460.4349500
W23A2G10017	Maxey Range Complex	West Area	20130826	CD	Scrap Metal	0	252858.63777800	3745457.4116900
W23A2G10018	Maxey Range Complex	West Area	20130826	CD	Wire	3	252856.40255100	3745458.2852900
W23A2G10019	Maxey Range Complex	West Area	20130826	MD	Frag	3	252859.56092900	3745451.1888700
W23A2G10020	Maxey Range Complex	West Area	20130826	CD	Scrap Metal	3	252854.23178000	3745452.9815100
W23A2G10021	Maxey Range Complex	West Area	20130826	CD	Scrap Metal	2	252859.02657200	3745453.5346300
W23A2G10022	Maxey Range Complex	West Area	20130826	S	Seed	2	252859.04208900	3745461.5661000
W23A2G10023	Maxey Range Complex	West Area	20130826	CD	Scrap Metal	3	252859.83012000	3745453.9040200
W23A2G10024	Maxey Range Complex	West Area	20130826	CD	Socket,tool	2	252850.67708500	3745464.0016200
W24A1G10001	Maxey Range Complex	West Area	20130911	CD	Barb Wire	5	255268.61796100	3745355.9303900
W24A1G10002	Maxey Range Complex	West Area	20130911	CD	Barb Wire	4	255268.80391100	3745354.5974000
W24A1G10003	Maxey Range Complex	West Area	20130911	CD	Barb Wire	2	255269.27862300	3745354.4279100
W24A1G10004	Maxey Range Complex	West Area	20130911	CD	Barb Wire	2	255267.43671100	3745355.2252100
W24A1G10005	Maxey Range Complex	West Area	20130911	CD	Barb Wire	4	255266.92308100	3745355.3345600
W24A1G10006	Maxey Range Complex	West Area	20130911	CD	Barb Wire	3	255266.62369700	3745353.8996300
W24A1G10007	Maxey Range Complex	West Area	20130911	S	Seed	1	255257.34703500	3745357.5577900
W24A1G10008	Maxey Range Complex	West Area	20130911	S	Seed	1	255258.23293100	3745356.7453300
W24A1G10009	Maxey Range Complex	West Area	20130911	CD	Barb Wire	4	255255.60010600	3745359.1889400
W24A1G10010	Maxey Range Complex	West Area	20130911	CD	Barb Wire	2	255269.55560900	3745355.9474500
W24A1G10011	Maxey Range Complex	West Area	20130911	CD	Cast Iron Pan Handle	4	255268.33564100	3745357.4066600
W24A1G10012	Maxey Range Complex	West Area	20130911	CD	Barb Wire	1	255258.70330400	3745359.5681600
W24A1G10013	Maxey Range Complex	West Area	20130911	CD	Barb Wire	1	255265.70023100	3745355.4287400
W24A1G10014	Maxey Range Complex	West Area	20130911	MD	30 Cal Bullet	3	255269.24188400	3745367.5137400
W24A1G10015	Maxey Range Complex	West Area	20130911	CD	Barb Wire	2	255261.72550900	3745354.9986600
W24A2G10001	Maxey Range Complex	West Area	20130815	S	Seed	4	252221.06189900	3745320.1272700
W24A2G10002	Maxey Range Complex	West Area	20130815	MEC	76mm APHE	12	252218.70954600	3745327.3714300
W24A2G10003	Maxey Range Complex	West Area	20130815	MD	Frag	4	252229.33253400	3745325.7069000
W27A2T001	Maxey Range Complex	West Area	20130618	MEC	76mm APHE	0	252690.00000000	3745056.0000000
W27A2T002	Maxey Range Complex	West Area	20130628	MEC	76mm APHE	0	252667.00000000	3745058.0000000
W27A2G10001	Maxey Range Complex	West Area	20130822	MEC	155 mm HE with fuze	4	253572.54110500	3745069.6776000

W27A2G10002	Maxey Range Complex	West Area	20130822	S	Seed	3	253570.83184300	3745076.4537500
W27A2G10003	Maxey Range Complex	West Area	20130822	MD	Frag	0	253571.57097300	3745063.8111900
W27A2G10004	Maxey Range Complex	West Area	20130822	MD	Frag	8	253576.58290800	3745070.8512400
W27A2G10005	Maxey Range Complex	West Area	20130822	MD	Frag	0	253575.32204700	3745064.8713000
W27A2G10006	Maxey Range Complex	West Area	20130822	MD	Frag	2	253568.09733700	3745068.1072300
W27A2G10007	Maxey Range Complex	West Area	20130822	MD	Frag	2	253561.33655700	3745066.2212300
W27A2G10008	Maxey Range Complex	West Area	20130822	MD	Frag	2	253574.18078000	3745075.2782000
W27A2G10009	Maxey Range Complex	West Area	20130822	MD	Frag	4	253567.35438300	3745071.6519600
W27A2G10010	Maxey Range Complex	West Area	20130822	MD	Frag	6	253573.57997300	3745075.9596600
W27A2G10011	Maxey Range Complex	West Area	20130822	MD	Frag	1	253572.52714800	3745064.2869900
W27A2G10012	Maxey Range Complex	West Area	20130822	MD	Frag	3	253563.66609200	3745067.3871200
W27A2G10013	Maxey Range Complex	West Area	20130822	MD	Frag	3	253569.50984400	3745066.7895600
W27A2G10014	Maxey Range Complex	West Area	20130822	MD	Frag	4	253570.24300800	3745066.1571100
W27A2G10015	Maxey Range Complex	West Area	20130822	MD	Frag	2	253565.78037900	3745065.8907200
W27A2G10016	Maxey Range Complex	West Area	20130822	MD	Frag	6	253569.07975200	3745075.6610800
W27A2G10017	Maxey Range Complex	West Area	20130822	MD	Frag	4	253575.18200600	3745071.8708500
W27A2G10018	Maxey Range Complex	West Area	20130822	MD	Frag	4	253570.84069700	3745064.6987400
W27A2G10019	Maxey Range Complex	West Area	20130822	MD	Frag	3	253560.69051700	3745066.9789200
W27A2G10020	Maxey Range Complex	West Area	20130822	MD	Frag	6	253567.91287400	3745067.3432700
W27A2G10021	Maxey Range Complex	West Area	20130822	MD	Frag	4	253576.99520000	3745075.3460000
W27A2G10022	Maxey Range Complex	West Area	20130822	MD	Frag	6	253561.63009800	3745071.8074700
W27A2G10023	Maxey Range Complex	West Area	20130822	MD	Frag	2	253565.44891800	3745067.4018100
W27A2G10024	Maxey Range Complex	West Area	20130822	MD	Frag	2	253576.64599800	3745061.9010000
W27A2G10025	Maxey Range Complex	West Area	20130822	MD	Frag	6	253575.82487200	3745062.5871900
W27A2G10026	Maxey Range Complex	West Area	20130822	MD	Frag	3	253571.97904000	3745066.2787800
W27A2G10027	Maxey Range Complex	West Area	20130822	MD	Frag	6	253563.93916600	3745068.4137800
W27A2G10028	Maxey Range Complex	West Area	20130822	MD	Frag	4	253569.39883400	3745070.1140700
W27A2G10029	Maxey Range Complex	West Area	20130822	MD	Frag	4	253575.65942100	3745069.3093100
W27A2G10030	Maxey Range Complex	West Area	20130822	MD	Frag	6	253571.80985800	3745077.7045200
W27A2G10031	Maxey Range Complex	West Area	20130822	MD	Frag	6	253574.68297900	3745067.7432200
W27A2G10032	Maxey Range Complex	West Area	20130822	MD	Frag	0	253566.72912000	3745069.3710500
W27A2G10033	Maxey Range Complex	West Area	20130822	CD	Tin Can	6	253569.93759900	3745072.4975800
W27A2G10034	Maxey Range Complex	West Area	20130822	MD	Frag	6	253566.12448400	3745070.2050100
W27A2G20001	Maxey Range Complex	West Area	20130821	MD	Frag	0	253167.69342500	3745047.1902600
W27A2G20002	Maxey Range Complex	West Area	20130821	MD	Frag	2	253167.62223300	3745047.7731000
W27A2G20003	Maxey Range Complex	West Area	20130821	S	Seed	2	253162.47635200	3745047.5941500
W27A2G20004	Maxey Range Complex	West Area	20130821	S	Seed	2	253162.49387900	3745048.1105200
W27A2G20005	Maxey Range Complex	West Area	20130821	MD	Frag	4	253172.41702500	3745043.3058700
W27A2G20006	Maxey Range Complex	West Area	20130821	MD	Frag	6	253174.93209800	3745055.2235600
W27A2G20007	Maxey Range Complex	West Area	20130821	MD	Frag	3	253162.00221000	3745057.9654100
W27A2G20008	Maxey Range Complex	West Area	20130821	MD	Frag	4	253165.30233300	3745046.5962500
W27A2G20009	Maxey Range Complex	West Area	20130821	MD	Frag	2	253163.80192700	3745044.1344100
W27A2G20010	Maxey Range Complex	West Area	20130821	MD	Frag	1	253172.77223900	3745045.8035200
W27A2G20011	Maxey Range Complex	West Area	20130821	MD	30Cal fired bullet	6	253171.37705200	3745052.8636200
W27A2G20012	Maxey Range Complex	West Area	20130821	MD	Frag	0	253162.81604300	3745057.6021200
W27A2G20013	Maxey Range Complex	West Area	20130821	MD	Frag	1	253173.49327000	3745050.8734000
W27A2G20014	Maxey Range Complex	West Area	20130821	MD	Frag	6	253175.82032400	3745055.6484100
W27A2G20015	Maxey Range Complex	West Area	20130821	NC	No Contact	0	253174.30405300	3745050.3630100
W27A2G20016	Maxey Range Complex	West Area	20130821	MD	Frag	6	253175.47182600	3745053.4404900
W27A2G20017	Maxey Range Complex	West Area	20130821	MD	Frag	2	253172.05323600	3745051.8956200
W27A2G20018	Maxey Range Complex	West Area	20130821	MD	Frag	4	253164.81462200	3745047.3100000
W27A2G20019	Maxey Range Complex	West Area	20130821	NC	No Contact	0	253172.15280900	3745046.7428800
W27A2G20020	Maxey Range Complex	West Area	20130821	MD	Frag	2	253163.10272800	3745044.6810100
W27A2G20021	Maxey Range Complex	West Area	20130821	MD	Frag	4	253159.52859400	3745057.6122900
W27A2G20022	Maxey Range Complex	West Area	20130821	MD	Frag	3	253165.55823900	3745048.9229600
W27A2G20023	Maxey Range Complex	West Area	20130821	MD	Frag	4	253171.00427000	3745056.6892900
W27A2G20024	Maxey Range Complex	West Area	20130821	MD	Frag	4	253164.23583000	3745052.9363600
W27A2G20025	Maxey Range Complex	West Area	20130821	NC	No Contact	0	253161.08377400	3745052.9570800
W27A2G20026	Maxey Range Complex	West Area	20130821	MD	Frag	1	253172.96977000	3745047.1924500
W27A2G20027	Maxey Range Complex	West Area	20130821	MD	Frag	2	253173.85499500	3745043.1970000
W27T1G10001	Maxey Range Complex	West Area	20130906	CD	Barb Wire	8	250769.09238400	3745022.7476600
W27T1G10002	Maxey Range Complex	West Area	20130906	MD	60mm Tail boom	3	250760.17077900	3745018.0753400
W27T1G10003	Maxey Range Complex	West Area	20130906	CD	Barb Wire	4	250770.19698200	3745023.7359300
W27T1G10004	Maxey Range Complex	West Area	20130906	S	Seed	3	250760.85393800	3745020.3247500
W27T1G10005	Maxey Range Complex	West Area	20130906	MD	30cal bullet	3	250759.36977000	3745020.5530100
W27T1G10006	Maxey Range Complex	West Area	20130906	CD	Barb Wire	3	250765.17535000	3745022.5639500
W27T1G10007	Maxey Range Complex	West Area	20130906	CD	Plow Blade	4	250758.62409400	3745020.9511800
W27T1G10008	Maxey Range Complex	West Area	20130906	CD	Barb Wire	1	250757.06085100	3745019.8328100
W27T1G10009	Maxey Range Complex	West Area	20130906	CD	Barb Wire	1	250757.91062000	3745019.4567600
W27T1G10010	Maxey Range Complex	West Area	20130906	CD	Barb Wire	8	250766.92143500	3745017.6254900
W27T1G10011	Maxey Range Complex	West Area	20130906	CD	Barb Wire	1	250757.86135600	3745022.5799800
W27T1G10012	Maxey Range Complex	West Area	20130906	CD	Barb Wire	3	250768.44450000	3745017.2121500
W27T1G10013	Maxey Range Complex	West Area	20130906	CD	Barb Wire	2	250771.16262500	3745026.2065800
W27T1G10014	Maxey Range Complex	West Area	20130906	CD	Barb Wire	5	250766.99762700	3745016.3069700
W27T1G10015	Maxey Range Complex	West Area	20130906	CD	Barb Wire	2	250758.87565300	3745016.5104300

W27T1G10016	Maxey Range Complex	West Area	20130906	MD	Frag	5	250770.08602300	3745021.0786900
W27T1G10017	Maxey Range Complex	West Area	20130906	CD	Barb Wire	0	250760.05458800	3745022.7078000
W27T1G10018	Maxey Range Complex	West Area	20130906	CD	Barb Wire	8	250767.72277100	3745016.7597600
W27T1G10019	Maxey Range Complex	West Area	20130906	CD	Barb Wire	6	250765.37051000	3745018.6992900
W27T1G10020	Maxey Range Complex	West Area	20130906	CD	Barb Wire	4	250769.81523300	3745015.8623800
W27T1G10021	Maxey Range Complex	West Area	20130906	CD	Scrap Metal	0	250764.58963100	3745019.4726000
W27T1G10022	Maxey Range Complex	West Area	20130906	CD	Barb Wire	1	250758.57372600	3745023.6950000
W27T1G10023	Maxey Range Complex	West Area	20130906	CD	Barb Wire	0	250763.94877000	3745017.1333300
W27T1G10024	Maxey Range Complex	West Area	20130906	CD	Barb Wire	2	250757.01882100	3745022.9317200
W27T1G10025	Maxey Range Complex	West Area	20130906	CD	Barb Wire	3	250760.20160500	3745016.8463200
W27T1G10026	Maxey Range Complex	West Area	20130906	CD	Barb Wire	4	250768.52412500	3745015.9888500
W27T1G10027	Maxey Range Complex	West Area	20130906	CD	Wire	4	250760.81053700	3745021.8367500
W27T1G10028	Maxey Range Complex	West Area	20130906	CD	Barb Wire	6	250757.29559300	3745016.7279600
W27T1G10029	Maxey Range Complex	West Area	20130906	CD	Barb Wire	4	250757.21900000	3745014.2670000
W27T1G10030	Maxey Range Complex	West Area	20130906	CD	Barb Wire	3	250769.91175800	3745017.6456300
W27T1G10031	Maxey Range Complex	West Area	20130906	CD	Barb Wire	3	250764.75754400	3745015.8892000
W27T1G132P1	Maxey Range Complex	West Area	20130906	CD	Barb Wire	0	250757.11636400	3745023.9264800
W27T1G132P2	Maxey Range Complex	West Area	20130906	CD	Barb Wire	0	250757.08721700	3745026.6695000
W27T1G132P3	Maxey Range Complex	West Area	20130906	CD	Barb Wire	0	250761.33555600	3745026.1781100
W27T1G132P4	Maxey Range Complex	West Area	20130906	CD	Barb Wire	0	250771.47588900	3745025.7759400
W27T1G132P5	Maxey Range Complex	West Area	20130906	CD	Barb Wire	0	250771.62031500	3745024.0442100
W27T1G132P6	Maxey Range Complex	West Area	20130906	CD	Barb Wire	0	250767.99153500	3745023.8505600
W27T1G132P7	Maxey Range Complex	West Area	20130906	CD	Barb Wire	0	250762.14069000	3745023.5417800
W27T1G132P8	Maxey Range Complex	West Area	20130906	CD	Barb Wire	0	250757.83495300	3745024.0569800
W27T1G132P9	Maxey Range Complex	West Area	20130906	CD	Barb Wire	0	250757.11633100	3745023.9295100
W29A2T001	Maxey Range Complex	West Area	20130628	MEC	76 mm APHE	0	252631.00000000	3744850.0000000
W29A2G10001	Maxey Range Complex	West Area	20130828	S	Seed	3	252679.01531400	3744862.1665600
W29A2G10002	Maxey Range Complex	West Area	20130828	MD	Frag	0	252687.41191600	3744853.5992900
W29A2G10003	Maxey Range Complex	West Area	20130828	MD	Frag	2	252688.18068900	3744854.2566100
W29A2G10004	Maxey Range Complex	West Area	20130828	MD	Frag	0	252685.20798600	3744859.7869800
W29A2G10005	Maxey Range Complex	West Area	20130828	MD	Frag	1	252686.29017300	3744848.9211500
W29A2G10006	Maxey Range Complex	West Area	20130828	MD	Frag	1	252684.20589200	3744849.7632100
W29A2G10007	Maxey Range Complex	West Area	20130828	MD	Frag	0	252680.07629900	3744858.7547300
W29A2G10008	Maxey Range Complex	West Area	20130828	MD	Frag	4	252677.51017200	3744859.5440400
W29A2G10009	Maxey Range Complex	West Area	20130828	MD	Frag	3	252689.14900400	3744848.6730000
W29A2G10010	Maxey Range Complex	West Area	20130828	MD	Frag	0	252675.18170100	3744852.9130700
W29A2G10011	Maxey Range Complex	West Area	20130828	MD	Frag	0	252689.85004900	3744857.2613700
W29A2G10012	Maxey Range Complex	West Area	20130828	MD	Frag	4	252680.00551800	3744850.9670000
W29A2G10013	Maxey Range Complex	West Area	20130828	MD	Frag	2	252686.97220500	3744856.7357500
W29A2G10014	Maxey Range Complex	West Area	20130828	MD	Frag	0	252674.89197700	3744850.2776400
W29A2G10015	Maxey Range Complex	West Area	20130828	MD	Frag	1	252682.95737300	3744851.7872500
W30A2T001	Maxey Range Complex	West Area	20130822	MEC	76 mm APHE	0	252706.00000000	3744730.0000000
W30A2G10001	Maxey Range Complex	West Area	20130819	S	Seed	6	251087.77093900	3744766.4643100
W30A2G10002	Maxey Range Complex	West Area	20130819	MD	Frag	6	251065.87617900	3744744.0876500
W30A2G10003	Maxey Range Complex	West Area	20130819	CD	Nut/Bolt	8	251096.52500000	3744742.5570000
W30A2G10004	Maxey Range Complex	West Area	20130819	NC	N/A	0	251066.78639100	3744751.8026700
W30A2G10005	Maxey Range Complex	West Area	20130819	NC	N/A	0	251068.61862300	3744767.3306400
W30A2G10006	Maxey Range Complex	West Area	20130819	MD	Frag	6	251097.12772100	3744745.6420100
W31A2G10001	Maxey Range Complex	West Area	20130822	MEC	76mm APHE fuzed	8	253212.99273700	3744671.2620400
W31A2G10002	Maxey Range Complex	West Area	20130822	S	Seed	1	253207.38867600	3744665.7407000
W31A2G10003	Maxey Range Complex	West Area	20130822	MD	Frag Pit	6	253203.98920100	3744666.8172800
W31A2G10004	Maxey Range Complex	West Area	20130822	MD	Frag Pit	8	253199.38429300	3744661.9523800
W31A2G10005	Maxey Range Complex	West Area	20130822	MD	Portions of 76mm	1	253204.10668300	3744673.4379700
W31A2G10006	Maxey Range Complex	West Area	20130822	MD	Frag	2	253207.97895900	3744662.0256200
W31A2G10007	Maxey Range Complex	West Area	20130822	MD	Frag	0	253214.86145000	3744658.1299100
W31A2G10008	Maxey Range Complex	West Area	20130822	MD	Frag	1	253205.61354200	3744669.4804400
W31A2G10009	Maxey Range Complex	West Area	20130822	MD	Frag Pit	12	253213.40239500	3744659.2589200
W31A2G10010	Maxey Range Complex	West Area	20130822	MD	Frag	0	253204.10497900	3744667.6441600
W31A2G10011	Maxey Range Complex	West Area	20130822	MD	Frag	1	253211.30013300	3744670.2645300
W31A2G10012	Maxey Range Complex	West Area	20130822	MD	Frag	4	253208.70446000	3744660.2891800
W31A2G10013	Maxey Range Complex	West Area	20130822	MD	Frag	2	253208.03280300	3744662.6539000
W31A2G10014	Maxey Range Complex	West Area	20130822	MD	Frag	6	253199.79533800	3744659.8203700
W31A2G10015	Maxey Range Complex	West Area	20130822	MD	Frag	4	253198.89599800	3744659.3230000
W31A2G10016	Maxey Range Complex	West Area	20130822	MD	Frag	6	253203.62890800	3744664.2440800
W31A2G10017	Maxey Range Complex	West Area	20130822	MD	Frag	4	253201.35476300	3744659.5018800
W31A2G10018	Maxey Range Complex	West Area	20130822	MD	Frag	6	253211.45083700	3744672.3643000
W31A2G10019	Maxey Range Complex	West Area	20130822	MD	Frag	4	253203.23122300	3744667.9333500
W31A2G10020	Maxey Range Complex	West Area	20130822	MD	Frag	8	253211.40146400	3744668.8857400
W31A2G10021	Maxey Range Complex	West Area	20130822	MD	Frag	1	253208.89682000	3744672.7357500
W31A2G10022	Maxey Range Complex	West Area	20130822	MD	Frag	1	253210.30269800	3744665.1069400
W31A2G10023	Maxey Range Complex	West Area	20130822	MD	Frag	4	253210.42461200	3744665.6209100
W31A2G10024	Maxey Range Complex	West Area	20130822	MD	Frag	2	253214.93215400	3744671.5964600
W31A2G10025	Maxey Range Complex	West Area	20130822	MD	Frag	2	253202.04426600	3744663.8590200
W31A2G10026	Maxey Range Complex	West Area	20130822	MD	Frag	2	253205.25272900	3744670.8425300
W31A2G10027	Maxey Range Complex	West Area	20130822	MD	Frag	4	253212.71341600	3744662.1209600

W31A2G10028	Maxey Range Complex	West Area	20130822	MD	Frag	3	253206.89147800	3744672.9922600
W31A2G10029	Maxey Range Complex	West Area	20130822	MD	Frag	6	253206.27194700	3744673.4726800
W31A2G10030	Maxey Range Complex	West Area	20130822	MD	Frag	0	253199.73251600	3744663.8274900
W31A2G10031	Maxey Range Complex	West Area	20130822	MD	Frag	4	253208.82721400	3744671.9235500
W31A2G10032	Maxey Range Complex	West Area	20130822	MD	Frag	0	253208.10975400	3744663.5518100
W31A2G10033	Maxey Range Complex	West Area	20130822	MD	Frag	6	253209.48779400	3744671.6298500
W31A2G10034	Maxey Range Complex	West Area	20130822	MD	Frag	6	253212.83303600	3744669.5570600
W31A2G10035	Maxey Range Complex	West Area	20130822	MD	Frag	0	253206.24498400	3744667.2604100
W34A2G10001	Maxey Range Complex	West Area	20130906	CD	Barb Wire/Ladder	3	249640.28222400	3744342.0945500
W34A2G10002	Maxey Range Complex	West Area	20130906	S	Seed	3	249623.31633500	3744335.6713300
W34A2G10003	Maxey Range Complex	West Area	20130906	CD	Barb Wire	3	249636.76588300	3744315.0614900
W34A2G10004	Maxey Range Complex	West Area	20130906	CD	Plow blade part	3	249638.97901000	3744328.1725800
W34A2G10005	Maxey Range Complex	West Area	20130906	CD	Barb Wire	4	249636.80492700	3744317.5260200
W34A2G10006	Maxey Range Complex	West Area	20130906	CD	Barb Wire	2	249639.48810000	3744340.9283400
W34A2G10007	Maxey Range Complex	West Area	20130906	CD	Barb Wire	4	249637.92310300	3744339.5433500
W34A2G10008	Maxey Range Complex	West Area	20130906	CD	Barb Wire	3	249638.57310100	3744341.5963100
W34A2G10009	Maxey Range Complex	West Area	20130906	CD	Barb Wire	1	249639.30845100	3744338.8214300
W34A2G10010	Maxey Range Complex	West Area	20130906	CD	Barb Wire	6	249637.82873000	3744333.9522200
W34A2G10011	Maxey Range Complex	West Area	20130906	CD	Barb Wire	6	249636.77939800	3744315.9146100
W34A2G10012	Maxey Range Complex	West Area	20130906	CD	Barb Wire	4	249638.74732400	3744342.6048000
W34A2G10013	Maxey Range Complex	West Area	20130906	CD	Bolt	4	249636.93556600	3744325.7722200
W34A2G10014	Maxey Range Complex	West Area	20130906	CD	Chain links	4	249636.92055000	3744324.8244200
W34A2G10015	Maxey Range Complex	West Area	20130906	CD	Barb Wire	6	249639.52940400	3744343.1077000
W34A2G10016	Maxey Range Complex	West Area	20130906	CD	Barb Wire	3	249641.00904000	3744339.9444400
W34A2G10017	Maxey Range Complex	West Area	20130906	CD	Barb Wire	0	249638.46986600	3744335.7657400
W34A2G10018	Maxey Range Complex	West Area	20130906	CD	Barb Wire	3	249641.87145700	3744344.1425300
W34A2G10019	Maxey Range Complex	West Area	20130906	CD	Barb Wire	1	249637.89334000	3744337.7800000
W34A2G10020	Maxey Range Complex	West Area	20130906	CD	Nails	3	249637.71035600	3744326.9391100
W34A2G10021	Maxey Range Complex	West Area	20130906	CD	Barb Wire	2	249629.46409700	3744340.2652600
W34A2G10022	Maxey Range Complex	West Area	20130906	CD	Barb Wire	5	249640.48900100	3744315.2110400
W34A2G10023	Maxey Range Complex	West Area	20130906	CD	Barb Wire	1	249634.55330100	3744316.5834200
W34A2G10024	Maxey Range Complex	West Area	20130906	CD	Barb Wire	1	249641.22336300	3744314.7671000
W34A2G10025	Maxey Range Complex	West Area	20130906	CD	Barb Wire	6	249612.54834400	3744338.7730600
W34A2G10026	Maxey Range Complex	West Area	20130906	CD	Barb Wire	2	249636.98569900	3744338.9921000
W34A2G10027	Maxey Range Complex	West Area	20130906	CD	Barb Wire	1	249636.58693200	3744344.1726600
W34A2G10028	Maxey Range Complex	West Area	20130906	CD	Barb Wire	2	249628.80260300	3744339.3343600
W34A2G10029	Maxey Range Complex	West Area	20130906	CD	Scrap Metal	6	249616.61148200	3744320.6124800
W34A2G10030	Maxey Range Complex	West Area	20130906	CD	Barb Wire	12	249617.12164700	3744342.1712300
W34A2G10031	Maxey Range Complex	West Area	20130906	CD	Barb Wire	0	249634.58347500	3744318.9533300
W34A2G10032	Maxey Range Complex	West Area	20130906	CD	Scrap Metal	6	249610.84868100	3744347.1563200
W34A2G10033	Maxey Range Complex	West Area	20130906	CD	Chain links	4	249620.34300600	3744323.0456500
W34A2G10034	Maxey Range Complex	West Area	20130906	CD	Nails	4	249627.85597600	3744320.2992300
W35A2T001	Maxey Range Complex	West Area	20130822	MEC	76 mm APHE	0	252481.00000000	3744730.0000000
W35A2T002	Maxey Range Complex	West Area	20130822	MEC	77 mm APHE	0	252581.00000000	3744241.0000000
W35A2T003	Maxey Range Complex	West Area	20130822	MEC	78 mm APHE	0	252200.00000000	3744235.0000000
W35A2G10003	Maxey Range Complex	West Area	20130827	S	Seed	1	253090.28665700	3744206.2730600
W35A2G10004	Maxey Range Complex	West Area	20130827	MD	Frag	1	253099.32303400	3744205.9200900
W35A2G10010	Maxey Range Complex	West Area	20130827	MD	Frag	3	253099.16049500	3744210.3413700
W35A2G10013	Maxey Range Complex	West Area	20130827	MD	Frag	10	253092.51923800	3744204.7991000
W35A2G10019	Maxey Range Complex	West Area	20130827	MD	Frag	3	253104.51442100	3744213.4363200
W35A2G10027	Maxey Range Complex	West Area	20130827	MD	Frag	3	253099.74531200	3744213.8951100
W35A2G10031	Maxey Range Complex	West Area	20130827	MD	Frag	3	253088.82266400	3744211.1871500
W35A2G10032	Maxey Range Complex	West Area	20130827	MD	Frag	3	253092.57509100	3744218.1053100
W35A2G10041	Maxey Range Complex	West Area	20130827	MD	Frag	5	253099.44983800	3744206.8061200
W35A2G10042	Maxey Range Complex	West Area	20130827	MD	Frag	4	253094.57037300	3744203.8171400
W35A2G10049	Maxey Range Complex	West Area	20130827	MD	Frag	2	253098.45587400	3744211.0416500
W35A2G10051	Maxey Range Complex	West Area	20130827	MD	Frag	5	253095.95670500	3744210.0047100
W35A2G20001	Maxey Range Complex	West Area	20130827	MD	Frag	8	252450.48492500	3744255.8761100
W35A2G20002	Maxey Range Complex	West Area	20130827	MD	Frag	8	252449.83508600	3744256.6279600
W35A2G20003	Maxey Range Complex	West Area	20130827	MD	Frag	1	252444.98728300	3744257.0008400
W35A2G20004	Maxey Range Complex	West Area	20130827	MD	30 cal fired bullet	3	252444.39460000	3744256.7436900
W35A2G20005	Maxey Range Complex	West Area	20130827	MD	Frag	3	252454.18474700	3744255.0764600
W35A2G20006	Maxey Range Complex	West Area	20130827	MD	Frag	0	252453.49307300	3744256.2458600
W35A2G20007	Maxey Range Complex	West Area	20130827	MD	Frag	3	252444.60076000	3744251.3910600
W35A2G20008	Maxey Range Complex	West Area	20130827	MD	Frag	2	252448.60017200	3744257.1106400
W35A2G20009	Maxey Range Complex	West Area	20130827	MD	Nose cap to 75mm	0	252444.55170200	3744254.6366200
W35A2G20010	Maxey Range Complex	West Area	20130827	MD	Frag	1	252446.33390300	3744253.8633800
W35A2G20011	Maxey Range Complex	West Area	20130827	MD	Frag	1	252457.43481700	3744245.0977000
W35A2G20012	Maxey Range Complex	West Area	20130827	MD	Frag	1	252448.28455700	3744252.9992900
W35A2G30001	Maxey Range Complex	West Area	20130819	MD	Frag	4	251488.01694400	3744214.9186100
W35A2G30002	Maxey Range Complex	West Area	20130819	NC	N/A	0	251495.84548800	3744220.6724400
W35A2G30003	Maxey Range Complex	West Area	20130819	MD	Frag	6	251490.93702700	3744221.9332600
W35A2G30004	Maxey Range Complex	West Area	20130819	MD	Frag	4	251482.89722100	3744218.8394900
W36A2G10001	Maxey Range Complex	West Area	20130905	CD	Trash Pit	12	250365.08909400	3744133.1208500
W36A2G10002	Maxey Range Complex	West Area	20130905	CD	Trash Pit	4	250372.33551700	3744148.9629100

W36A2G10009	Maxey Range Complex	West Area	20130905	CD	Trash Pit	12	250363.48219500	3744133.5870900
W36A2G10020	Maxey Range Complex	West Area	20130905	CD	Trash Pit	6	250375.99528800	3744139.2933000
W36A2G10031	Maxey Range Complex	West Area	20130905	CD	Trash Pit	6	250374.36324900	3744143.2238800
W36A2G10032	Maxey Range Complex	West Area	20130905	CD	Wire/Nails	8	250369.53915200	3744135.7018300
W36A2G10035	Maxey Range Complex	West Area	20130905	CD	Wire/Nails	4	250370.97342400	3744135.3348500
W36A2G10037	Maxey Range Complex	West Area	20130905	CD	Scrap Metal	4	250373.67958500	3744145.7747800
W36A2G10040	Maxey Range Complex	West Area	20130905	CD	Wire/Nails	4	250363.91412400	3744137.5781500
W36A2G10046	Maxey Range Complex	West Area	20130905	CD	Wire/Nails	6	250371.07642700	3744137.5084600
W36A2G10050	Maxey Range Complex	West Area	20130905	CD	Trash Pit	3	250370.49033200	3744141.3504200
W36A2G10056	Maxey Range Complex	West Area	20130905	CD	Wire/Nails	4	250372.62079200	3744136.2772000
W36A2G10057	Maxey Range Complex	West Area	20130905	CD	Wire/Nails	4	250366.55384100	3744140.3690700
W36A2G10061	Maxey Range Complex	West Area	20130905	CD	Trash Pit	4	250369.91094300	3744146.8670100
W36A2G10063	Maxey Range Complex	West Area	20130905	CD	Trash Pit	4	250362.13126700	3744142.3793900
W36A2G10067	Maxey Range Complex	West Area	20130905	CD	Trash Pit	2	250365.70867200	3744139.6657200
W36A2G10068	Maxey Range Complex	West Area	20130905	CD	Nails	3	250377.34118600	3744147.6920900
W36A2G10079	Maxey Range Complex	West Area	20130905	CD	Barb Wire	2	250364.27056200	3744140.8716700
W37A2G10001	Maxey Range Complex	West Area	20130828	MD	Frag	4	252753.19278900	3744034.0799600
W37A2G10002	Maxey Range Complex	West Area	20130828	S	Seed	3	252746.20289800	3744041.7063300
W37A2G10003	Maxey Range Complex	West Area	20130828	MD	Frag	3	252742.82060400	3744038.9335500
W37A2G10004	Maxey Range Complex	West Area	20130828	MD	Frag	2	252747.48814900	3744041.1038900
W37A2G10005	Maxey Range Complex	West Area	20130828	MD	Frag	1	252744.78712200	3744042.6749000
W37A2G10006	Maxey Range Complex	West Area	20130828	MD	Frag	1	252749.24416300	3744037.7276900
W37A2G10007	Maxey Range Complex	West Area	20130828	MD	Frag	3	252744.10513800	3744037.6094100
W37A2G10008	Maxey Range Complex	West Area	20130828	MD	Frag	2	252748.77391000	3744039.7758800
W37A2G10009	Maxey Range Complex	West Area	20130828	MD	Frag	1	252753.09590000	3744033.2657800
W37A2G10010	Maxey Range Complex	West Area	20130828	CD	Barb Wire	4	252743.14286000	3744045.5101300
W37A2G10011	Maxey Range Complex	West Area	20130828	MD	Frag	4	252743.43281700	3744038.0553000
W37A2G10012	Maxey Range Complex	West Area	20130828	MD	Frag	4	252750.95599500	3744045.5739600
W37A2G10013	Maxey Range Complex	West Area	20130828	MD	Frag	3	252748.47779000	3744043.1413800
W37A2G10014	Maxey Range Complex	West Area	20130828	MD	Frag	3	252754.16209800	3744036.0769100
W37A2G10015	Maxey Range Complex	West Area	20130828	MD	Frag	3	252742.66394500	3744032.3951100
W37A2G10016	Maxey Range Complex	West Area	20130828	MD	Frag	4	252748.60302600	3744044.1151200
W37A2G10017	Maxey Range Complex	West Area	20130828	MD	Frag	2	252745.88347300	3744034.4112900
W37A2G10018	Maxey Range Complex	West Area	20130828	MD	Frag	2	252742.01132800	3744033.0283100
W37A2G10019	Maxey Range Complex	West Area	20130828	MD	Frag	4	252754.40608300	3744038.1480700
W37A2G10020	Maxey Range Complex	West Area	20130828	MD	Frag	4	252746.69733100	3744035.0121000
W37A2G10021	Maxey Range Complex	West Area	20130828	MD	Frag	3	252757.11716500	3744044.0070500
W37A2G10022	Maxey Range Complex	West Area	20130828	MD	Frag	5	252746.51979400	3744044.7906400
W37A2G10023	Maxey Range Complex	West Area	20130828	MD	Frag	2	252753.56593500	3744043.2930800
W37A2G10024	Maxey Range Complex	West Area	20130828	MD	Frag	3	252755.71637800	3744031.7670600
W37A2G10025	Maxey Range Complex	West Area	20130828	MD	Frag	6	252744.37556600	3744039.6180300
W37A2G10026	Maxey Range Complex	West Area	20130828	MD	Frag	3	252748.55848200	3744037.3671800
W37A2G10027	Maxey Range Complex	West Area	20130828	MD	Frag	3	252752.57740300	3744035.0691300
W37A2G10028	Maxey Range Complex	West Area	20130828	MD	Frag	3	252748.75103200	3744045.2659000
W37A2G10029	Maxey Range Complex	West Area	20130828	MD	Frag	3	252753.74171800	3744038.6927600
W37A2G10030	Maxey Range Complex	West Area	20130828	MD	Frag	2	252756.01776100	3744033.1169700
W37A2G10031	Maxey Range Complex	West Area	20130828	MD	Frag	3	252743.49380400	3744033.0686800
W37A2G10032	Maxey Range Complex	West Area	20130828	MD	Frag	4	252756.38931400	3744042.7018200
W37A2G10033	Maxey Range Complex	West Area	20130828	MD	Frag	3	252747.91435500	3744033.0295700
W37A2G10034	Maxey Range Complex	West Area	20130828	MD	Frag	2	252754.04286700	3744035.0647800
W37A2G10035	Maxey Range Complex	West Area	20130828	MD	Frag	3	252748.13914500	3744040.5083500
W37A2G10036	Maxey Range Complex	West Area	20130828	MD	Frag	6	252743.47534500	3744043.7111500
W37A2G10037	Maxey Range Complex	West Area	20130828	MD	Frag	4	252753.99270300	3744040.0382000
W37A2G10038	Maxey Range Complex	West Area	20130828	MD	Frag	3	252751.12542500	3744041.1159800
W37A2G10039	Maxey Range Complex	West Area	20130828	MD	Frag	3	252749.00826200	3744035.8585500
W37A2G10040	Maxey Range Complex	West Area	20130828	MD	Frag	1	252749.53159600	3744045.7226600
W37A2G10041	Maxey Range Complex	West Area	20130828	MD	Frag	3	252753.62428400	3744037.7059300
W37A2G10042	Maxey Range Complex	West Area	20130828	MD	Frag	2	252742.23456900	3744034.6572800
W38A2T0001	Maxey Range Complex	West Area	20130614	MEC	76 mm APHE	0	251474.00000000	3743946.0000000
W38A2G10001	Maxey Range Complex	West Area	20130827	MD	Frag	0	252179.84040100	3743930.9280100
W38A2T0001	Maxey Range Complex	West Area	20130823	MEC	76 mm APHE	0	252476.00000000	3743936.0000000
W38A2G10002	Maxey Range Complex	West Area	20130827	MD	Frag	1	252178.35341200	3743922.9058100
W38A2G10003	Maxey Range Complex	West Area	20130827	MD	Frag	1	252183.00672000	3743912.9595900
W38A2G10004	Maxey Range Complex	West Area	20130827	MD	Frag	2	252182.38246600	3743927.3855800
W38A2G10005	Maxey Range Complex	West Area	20130827	MD	Frag	3	252180.17424800	3743929.2785500
W38A2G10006	Maxey Range Complex	West Area	20130827	MD	Frag	7	252183.83549000	3743915.9624800
W38A2G10007	Maxey Range Complex	West Area	20130827	MD	Frag	2	252180.35078100	3743915.9691800
W38A2G10008	Maxey Range Complex	West Area	20130827	MD	Frag	3	252175.73002400	3743925.4614800
W38A2G10009	Maxey Range Complex	West Area	20130827	MD	Frag	3	252178.17563000	3743913.8531400
W38A2G10010	Maxey Range Complex	West Area	20130827	MD	Frag	4	252189.67059300	3743929.6748800
W38A2G10011	Maxey Range Complex	West Area	20130827	MD	Frag	1	252184.02978300	3743912.5752400
W38A2G10012	Maxey Range Complex	West Area	20130827	MD	Frag	3	252178.98321300	3743929.9038000
W38A2G10013	Maxey Range Complex	West Area	20130827	MD	Frag	3	252186.17301900	3743917.8872400
W38A2G10014	Maxey Range Complex	West Area	20130827	MD	Frag	1	252176.55473000	3743919.7401900
W39A2G10001	Maxey Range Complex	West Area	20130828	S	Seed	4	252960.84336600	3743864.9240400

W39A2G10002	Maxey Range Complex	West Area	20130828	MD	Frag	8	252966.18991000	3743861.7877700
W39A2G10003	Maxey Range Complex	West Area	20130828	MD	Frag	4	252967.19381100	3743873.9526900
W39A2G10004	Maxey Range Complex	West Area	20130828	MD	Frag	3	252958.29662200	3743866.4318300
W39A2G10005	Maxey Range Complex	West Area	20130828	MD	Frag Pit	6	252962.86936800	3743867.5468700
W39A2G10006	Maxey Range Complex	West Area	20130828	MD	Frag	4	252966.57154200	3743874.6207900
W39A2G10007	Maxey Range Complex	West Area	20130828	MD	Frag	6	252961.17430800	3743874.1708800
W39A2G10008	Maxey Range Complex	West Area	20130828	MD	Frag	6	252970.68178600	3743861.7900900
W39A2G10009	Maxey Range Complex	West Area	20130828	MD	Frag	6	252968.83691700	3743870.9037800
W39A2G10010	Maxey Range Complex	West Area	20130828	MD	Frag	6	252968.50700600	3743870.0459900
W39A2G10011	Maxey Range Complex	West Area	20130828	MD	Frag	6	252972.23358200	3743862.0334000
W39A2G10012	Maxey Range Complex	West Area	20130828	MD	Frag	4	252966.82650300	3743871.4278200
W39A2G10013	Maxey Range Complex	West Area	20130828	MD	Frag	4	252968.86233900	3743863.8232500
W39A2G10014	Maxey Range Complex	West Area	20130828	MD	Frag	8	252965.00362300	3743866.9510300
W39A2G10015	Maxey Range Complex	West Area	20130828	MD	Frag	6	252964.75261200	3743865.7231700
W39A2G10016	Maxey Range Complex	West Area	20130828	MD	Frag	4	252971.47373600	3743871.9123600
W39A2G10017	Maxey Range Complex	West Area	20130828	MD	Frag	4	252964.15987200	3743873.1997300
W39A2G10018	Maxey Range Complex	West Area	20130828	MD	Frag	6	252965.06897700	3743870.9671000
W39A2G10019	Maxey Range Complex	West Area	20130828	MD	Frag	6	252970.61637600	3743864.3039600
W39A2G10020	Maxey Range Complex	West Area	20130828	MD	Frag	0	252964.06149500	3743865.2779500
W39A2G10021	Maxey Range Complex	West Area	20130828	MD	Frag	6	252962.20977200	3743871.0151400
W39A2G10022	Maxey Range Complex	West Area	20130828	MD	Frag	6	252972.21524600	3743872.5454500
W39A2G10023	Maxey Range Complex	West Area	20130828	MD	Frag	6	252970.36073100	3743870.2288900
W39A2G10024	Maxey Range Complex	West Area	20130828	MD	Frag	6	252967.34586800	3743863.7467300
W39A2G10025	Maxey Range Complex	West Area	20130828	MD	Frag	10	252969.32015100	3743865.2851100
W39A2G10026	Maxey Range Complex	West Area	20130828	MD	Frag	6	252968.98896200	3743871.6336000
W39A2G10027	Maxey Range Complex	West Area	20130828	MD	Frag	6	252961.17690200	3743870.3718500
W39A2G10028	Maxey Range Complex	West Area	20130828	MD	Frag	4	252959.47414000	3743873.2151800
W39A2G10029	Maxey Range Complex	West Area	20130828	MD	Frag	4	252970.17360100	3743862.9260600
W39A2G10030	Maxey Range Complex	West Area	20130828	MD	Frag	6	252967.90815900	3743867.1688200
W39A2G10031	Maxey Range Complex	West Area	20130828	MD	Frag	4	252962.71799200	3743873.5593900
W39A2G10032	Maxey Range Complex	West Area	20130828	MD	Frag	3	252960.50733200	3743870.7956900
W39A2G10033	Maxey Range Complex	West Area	20130828	CD	AA Batteries	1	252969.19156100	3743872.6060800
W39A2G10034	Maxey Range Complex	West Area	20130828	MD	Frag	3	252970.66890700	3743872.4142200
W39A2G10035	Maxey Range Complex	West Area	20130828	MD	Frag	3	252968.80614000	3743874.4048600
W39A2G10036	Maxey Range Complex	West Area	20130828	MD	Frag	6	252972.99791700	3743865.5854900
W39A2G10037	Maxey Range Complex	West Area	20130828	MD	Frag Pit	12	252958.44885200	3743863.4001100
W39A2G10038	Maxey Range Complex	West Area	20130828	MD	Frag	4	252959.40629900	3743865.2239800
W39A2G10039	Maxey Range Complex	West Area	20130828	MD	Frag	6	252963.10741100	3743872.4812000
W39A2G10040	Maxey Range Complex	West Area	20130828	MD	Frag	6	252969.61366000	3743867.3960900
W39A2G10041	Maxey Range Complex	West Area	20130828	MD	Frag	4	252959.17142700	3743867.8336300
W39A2G20001	Maxey Range Complex	West Area	20130819	MD	Frag	3	251353.14550700	3743836.4706400
W39A2G20002	Maxey Range Complex	West Area	20130819	CD	Barb Wire	0	251342.76015400	3743844.6171900
W39A2G20003	Maxey Range Complex	West Area	20130819	MD	Frag	6	251342.02122100	3743843.7530200
W39A2G20004	Maxey Range Complex	West Area	20130819	MD	Frag	4	251343.44952600	3743845.4787100
W39A2G20005	Maxey Range Complex	West Area	20130819	MD	Frag	2	251347.20184700	3743842.8577200
W39A2G20006	Maxey Range Complex	West Area	20130819	MD	Frag	3	251341.71668700	3743833.7800200
W39A2G20007	Maxey Range Complex	West Area	20130819	MD	Frag	3	251353.29239600	3743834.1189000
W39A2G20008	Maxey Range Complex	West Area	20130819	MD	Frag	4	251347.42126600	3743838.9924700
W39A2G20009	Maxey Range Complex	West Area	20130819	MD	Frag	2	251348.65797700	3743845.3865700
W39A2G20010	Maxey Range Complex	West Area	20130819	MD	Frag	3	251341.13841500	3743846.8586300
W39A2G20011	Maxey Range Complex	West Area	20130819	MD	Frag	4	251355.48876600	3743838.3002000
W39A2G20012	Maxey Range Complex	West Area	20130819	MD	Frag	3	251355.81878200	3743836.7435800
W39A2G20013	Maxey Range Complex	West Area	20130819	MD	Frag	5	251354.99174100	3743836.6591400
W39A2G20014	Maxey Range Complex	West Area	20130819	MD	Frag	3	251344.35283800	3743832.6556300
W39A2G20015	Maxey Range Complex	West Area	20130819	MD	Frag	4	251346.07002400	3743838.9966200
W39A2G20016	Maxey Range Complex	West Area	20130819	CD	Barb Wire	3	251341.55598600	3743840.6308800
W39A2G20017	Maxey Range Complex	West Area	20130819	MD	Frag	2	251345.85484900	3743835.5718800
W39A2G20018	Maxey Range Complex	West Area	20130819	MD	Frag	3	251344.48672300	3743839.4358800
W39A2G20019	Maxey Range Complex	West Area	20130819	MD	Frag	3	251350.88697100	3743841.7376800
W39A2G20020	Maxey Range Complex	West Area	20130819	MD	Frag	5	251346.51079000	3743846.5086900
W39A2G20021	Maxey Range Complex	West Area	20130819	MD	Frag	2	251348.66606500	3743833.6792200
W39A2G20022	Maxey Range Complex	West Area	20130819	MD	Frag	2	251344.36625400	3743835.5743000
W39A2G20023	Maxey Range Complex	West Area	20130819	MD	Frag	6	251344.18249100	3743842.4853000
W39A2G20024	Maxey Range Complex	West Area	20130819	MD	Frag	3	251349.39659600	3743842.1877100
W39A2G20025	Maxey Range Complex	West Area	20130819	MD	Frag	5	251342.99709500	3743838.4990500
W39A2G20026	Maxey Range Complex	West Area	20130819	MD	Frag	4	251348.29356800	3743839.8694400
W39A2G20027	Maxey Range Complex	West Area	20130819	MD	Frag	4	251342.51318200	3743833.0944600
W39A2G20028	Maxey Range Complex	West Area	20130819	MD	Frag	4	251347.69682000	3743835.9143400
W39A2G20029	Maxey Range Complex	West Area	20130819	MD	Frag	5	251354.27015600	3743833.4214700
W39A2G20030	Maxey Range Complex	West Area	20130819	MD	Frag	2	251350.01244500	3743838.4981500
W3A1G10001	Maxey Range Complex	West Area	20130826	MD	Frag	0	253245.71152300	3747414.7948700
W3A1G10002	Maxey Range Complex	West Area	20130826	MD	Frag	6	253241.79975900	3747424.0355900
W3A1G10003	Maxey Range Complex	West Area	20130826	MD	Frag	1	253243.69985400	3747419.4069800
W3A1G10004	Maxey Range Complex	West Area	20130826	NC	N/A	0	253251.76519900	3747417.2940800
W3A1G10005	Maxey Range Complex	West Area	20130826	MD	Frag	2	253242.88038300	3747418.3303400

W3A1G10006	Maxey Range Complex	West Area	20130826	MD	Frag	3	253246.36520700	3747422.7612500
W3A1G10007	Maxey Range Complex	West Area	20130826	MD	Frag	1	253249.93452400	3747416.7820300
W3A1G10008	Maxey Range Complex	West Area	20130826	MD	Frag	1	253241.94402000	3747424.9420100
W3A1G10009	Maxey Range Complex	West Area	20130826	MD	Frag	3	253238.95464800	3747415.0084000
W3A1G10010	Maxey Range Complex	West Area	20130826	MD	Frag	2	253249.37916300	3747417.5321100
W3A1G10011	Maxey Range Complex	West Area	20130826	MD	Frag	3	253242.29940000	3747418.8626000
W3A1G10012	Maxey Range Complex	West Area	20130826	MD	Frag	2	253246.98769400	3747424.3511000
W3A1G10013	Maxey Range Complex	West Area	20130826	MD	Frag	2	253242.68160800	3747425.5617900
W3A1G10014	Maxey Range Complex	West Area	20130826	MD	Frag	1	253243.08701000	3747424.0157700
W3A1G10015	Maxey Range Complex	West Area	20130826	MD	Frag	1	253239.41288900	3747417.9070600
W3A1G10016	Maxey Range Complex	West Area	20130826	MD	Frag	1	253246.86662500	3747413.3350800
W3A1G10017	Maxey Range Complex	West Area	20130826	MD	Frag	1	253252.29141900	3747412.7369700
W3A1G10018	Maxey Range Complex	West Area	20130826	MD	Frag	2	253248.50636200	3747413.9216000
W3A1G10019	Maxey Range Complex	West Area	20130826	NC	NC	0	253244.29392900	3747418.9623800
W3A1G10020	Maxey Range Complex	West Area	20130826	MD	Frag	2	253247.32449900	3747422.0293400
W3A1G10021	Maxey Range Complex	West Area	20130826	MD	Frag	3	253239.48816800	3747413.7651800
W3A1G10022	Maxey Range Complex	West Area	20130826	MD	Frag	0	253246.31153300	3747414.2537500
W3A1G10023	Maxey Range Complex	West Area	20130826	MD	Frag	3	253240.58269200	3747413.1620200
W3A1G10024	Maxey Range Complex	West Area	20130826	MD	Frag	6	253248.35899600	3747420.2964500
W3A1G10025	Maxey Range Complex	West Area	20130826	MD	Frag	1	253241.67164000	3747414.7553000
W3A1G10026	Maxey Range Complex	West Area	20130826	MD	Frag	0	253251.71412100	3747424.9487700
W3A1G10027	Maxey Range Complex	West Area	20130826	MD	Frag	2	253245.41208500	3747422.2439600
W3A1G10028	Maxey Range Complex	West Area	20130826	MD	Frag	4	253252.07130300	3747410.3827700
W40A2G10001	Maxey Range Complex	West Area	20130820	MD	Frag	2	250986.44524700	3743734.9339500
W40A2G10002	Maxey Range Complex	West Area	20130820	MD	Frag	3	250985.77675500	3743738.2520700
W40A2G10003	Maxey Range Complex	West Area	20130820	MD	Frag	6	250985.04399500	3743737.9800700
W40A2G10004	Maxey Range Complex	West Area	20130820	MD	Frag	0	250987.46846900	3743744.5630000
W40A2G10005	Maxey Range Complex	West Area	20130820	MD	Frag	3	250982.73562700	3743734.9486000
W40A2G10006	Maxey Range Complex	West Area	20130820	MD	Frag	3	250984.59234600	3743746.6101700
W40A2G10007	Maxey Range Complex	West Area	20130820	MD	Frag	4	250989.39818000	3743739.1138400
W40A2G10008	Maxey Range Complex	West Area	20130820	MD	Frag	4	250991.20173400	3743733.8461200
W40A2G10009	Maxey Range Complex	West Area	20130820	MD	Frag	0	250980.23156000	3743742.5491200
W40A2G10010	Maxey Range Complex	West Area	20130820	MD	Frag	4	250985.87757600	3743742.8293200
W40A2G10011	Maxey Range Complex	West Area	20130820	MD	Frag	2	250987.93581600	3743736.0573700
W40A2G10012	Maxey Range Complex	West Area	20130820	MD	Frag	3	250978.41374000	3743736.8746300
W40A2G10013	Maxey Range Complex	West Area	20130820	MD	Frag	4	250991.53783300	3743740.2094700
W40A2G10014	Maxey Range Complex	West Area	20130820	MD	Frag	3	250983.57693700	3743737.6318000
W40A2G10015	Maxey Range Complex	West Area	20130820	NC	NC	0	250986.45726300	3743735.6370900
W40A2G10016	Maxey Range Complex	West Area	20130820	MD	Frag	6	250981.13124200	3743745.9734900
W40A2G10017	Maxey Range Complex	West Area	20130820	MD	Frag	2	250982.94298400	3743739.9103800
W40A2G10018	Maxey Range Complex	West Area	20130820	MD	Frag	3	250981.30772300	3743736.0646800
W40A2G10019	Maxey Range Complex	West Area	20130820	MD	Frag	10	250977.36194600	3743741.7299000
W40A2G10020	Maxey Range Complex	West Area	20130820	MD	Frag	3	250979.11127100	3743736.3218600
W40A2G10021	Maxey Range Complex	West Area	20130820	MD	Frag	4	250982.50100000	3743745.8192600
W40A2G10022	Maxey Range Complex	West Area	20130820	MD	Frag	6	250978.10364300	3743742.4273700
W40A2G10023	Maxey Range Complex	West Area	20130820	MD	Frag	3	250991.49115500	3743742.8879000
W41A2G10001	Maxey Range Complex	West Area	20130905	S	Seed	3	249715.85632000	3743641.6910300
W41A2G10002	Maxey Range Complex	West Area	20130905	CD	Trash Pit	3	249710.95101600	3743636.5648200
W41A2G10003	Maxey Range Complex	West Area	20130905	CD	Trash Pit	3	249710.97680300	3743637.1195700
W41A2G10004	Maxey Range Complex	West Area	20130905	CD	Wire/ scrap metal	3	249719.61528500	3743644.1270900
W41A2G10005	Maxey Range Complex	West Area	20130905	CD	Scrap Metal	3	249713.55111300	3743643.7089600
W41A2G10006	Maxey Range Complex	West Area	20130905	CD	Wire/ scrap metal	1	249724.13347900	3743640.2050500
W41A2G10007	Maxey Range Complex	West Area	20130905	MD	Frag	4	249709.62620000	3743640.6522000
W41A2G10008	Maxey Range Complex	West Area	20130905	CD	Scrap Metal	4	249714.11222200	3743639.3536000
W42A1G10001	Maxey Range Complex	West Area	20130911	CD	Barb Wire	1	254722.74911600	3743520.9466000
W42A1G10002	Maxey Range Complex	West Area	20130911	CD	Barb Wire	2	254723.61500500	3743530.0280400
W42A1G10003	Maxey Range Complex	West Area	20130911	S	Seed	3	254724.28244700	3743520.0656100
W42A1G10004	Maxey Range Complex	West Area	20130911	CD	Barb Wire	5	254723.07506500	3743517.4769300
W42A1G10005	Maxey Range Complex	West Area	20130911	CD	Barb Wire	2	254722.28150600	3743518.4379000
W42A1G10006	Maxey Range Complex	West Area	20130911	CD	Barb Wire	1	254724.22103600	3743528.9240500
W42A1G10007	Maxey Range Complex	West Area	20130911	CD	Barb Wire	2	254721.32425600	3743521.8142200
W42A1G10008	Maxey Range Complex	West Area	20130911	CD	Barb Wire	4	254723.07100900	3743516.2296600
W42A1G10009	Maxey Range Complex	West Area	20130911	CD	Barb Wire	1	254722.15339100	3743522.7281000
W42A1G10010	Maxey Range Complex	West Area	20130911	CD	Barb Wire	2	254722.62921600	3743528.2625600
W42A1G10011	Maxey Range Complex	West Area	20130911	CD	Barb Wire	2	254722.44975200	3743527.5983100
W42A1G10012	Maxey Range Complex	West Area	20130911	CD	Barb Wire	1	254720.50461700	3743520.9612200
W42A1G10013	Maxey Range Complex	West Area	20130911	CD	Barb Wire	2	254720.12547100	3743516.3011400
W42A1G10014	Maxey Range Complex	West Area	20130911	MD	Frag	4	254729.24834800	3743518.6049200
W42A1G10015	Maxey Range Complex	West Area	20130911	CD	Barb Wire	4	254720.41139300	3743519.8154100
W42A1G10016	Maxey Range Complex	West Area	20130911	CD	Barb Wire	2	254721.59783400	3743516.2662500
W42A1G10017	Maxey Range Complex	West Area	20130911	CD	Barb Wire	0	254719.27928200	3743522.2530900
W42A1G10018	Maxey Range Complex	West Area	20130911	CD	Barb Wire	1	254721.18310500	3743529.3005100
W42A1G10019	Maxey Range Complex	West Area	20130911	CD	Barb Wire	0	254719.14444900	3743522.7253200
W42A1G10020	Maxey Range Complex	West Area	20130911	CD	Barb Wire	2	254723.27745400	3743526.9311500
W42A2G10001	Maxey Range Complex	West Area	20130829	MD	Frag Pit	9	252687.20467800	3743570.5753300

W42A2G10002	Maxey Range Complex	West Area	20130829	S	Seed	3	252686.97513500	3743576.2329400
W42A2G10003	Maxey Range Complex	West Area	20130829	MD	Frag Pit	8	252683.01906400	3743572.7967500
W42A2G10004	Maxey Range Complex	West Area	20130829	MD	Frag	6	252681.55867800	3743581.6839500
W42A2G10005	Maxey Range Complex	West Area	20130829	MD	Frag Pit	6	252684.09707200	3743574.8288900
W42A2G10006	Maxey Range Complex	West Area	20130829	MD	Frag Pit	6	252688.83639800	3743570.3556300
W42A2G10007	Maxey Range Complex	West Area	20130829	MD	Frag	6	252686.37022500	3743568.2058200
W42A2G10008	Maxey Range Complex	West Area	20130829	MD	Frag	4	252693.85259400	3743575.3921000
W42A2G10009	Maxey Range Complex	West Area	20130829	MD	Frag	8	252685.55296000	3743570.1024500
W42A2G10010	Maxey Range Complex	West Area	20130829	MD	Frag	6	252686.99007800	3743582.9969700
W42A2G10011	Maxey Range Complex	West Area	20130829	MD	Frag	12	252695.72534900	3743579.9395800
W42A2G10012	Maxey Range Complex	West Area	20130829	MD	Frag	6	252685.66521500	3743568.7384500
W42A2G10013	Maxey Range Complex	West Area	20130829	MD	Frag	4	252683.20363800	3743583.0870300
W42A2G10014	Maxey Range Complex	West Area	20130829	MD	Frag	5	252692.91592300	3743579.8640800
W42A2G10015	Maxey Range Complex	West Area	20130829	MD	Frag	12	252693.79036900	3743581.0609100
W42A2G10016	Maxey Range Complex	West Area	20130829	MD	Frag Pit	6	252682.90850600	3743571.5908800
W42A2G10017	Maxey Range Complex	West Area	20130829	MD	Frag	4	252691.80180600	3743569.7664100
W42A2G10018	Maxey Range Complex	West Area	20130829	MD	Frag	3	252695.18585300	3743573.5178600
W42A2G10019	Maxey Range Complex	West Area	20130829	MD	Frag	4	252683.89420300	3743581.3951900
W42A2G10020	Maxey Range Complex	West Area	20130829	MD	Frag	3	252686.54279100	3743578.1831500
W42A2G10021	Maxey Range Complex	West Area	20130829	MD	Frag	4	252690.94573200	3743576.6722200
W42A2G10022	Maxey Range Complex	West Area	20130829	MD	Frag	8	252685.56004200	3743575.7512700
W42A2G10023	Maxey Range Complex	West Area	20130829	MD	Frag	9	252687.00777300	3743575.0445600
W42A2G10024	Maxey Range Complex	West Area	20130829	MD	Frag	8	252680.39074600	3743568.8153300
W42A2G10025	Maxey Range Complex	West Area	20130829	MD	Frag	6	252690.77938300	3743568.3738400
W42A2G10026	Maxey Range Complex	West Area	20130829	MD	Frag	6	252693.25400600	3743577.0486300
W42A2G10027	Maxey Range Complex	West Area	20130829	MD	Frag	6	252688.87154000	3743578.7786000
W43A2G10001	Maxey Range Complex	West Area	20130905	CD	Barb wire	2	250127.48693700	3743430.4812300
W43A2G10002	Maxey Range Complex	West Area	20130905	CD	Barb wire	2	250129.70082300	3743430.6446300
W43A2G10003	Maxey Range Complex	West Area	20130905	CD	Barb wire	2	250134.68450600	3743430.5376700
W43A2G10004	Maxey Range Complex	West Area	20130905	CD	Barb wire	1	250125.89902600	3743430.7142100
W43A2G10005	Maxey Range Complex	West Area	20130905	CD	Barb wire	2	250126.62471000	3743430.6494400
W43A2G10006	Maxey Range Complex	West Area	20130905	CD	Barb wire	2	250128.79286200	3743430.3655000
W43A2G10007	Maxey Range Complex	West Area	20130905	CD	Barb wire	1	250133.76937200	3743430.2738300
W43A2G10008	Maxey Range Complex	West Area	20130905	CD	Barb wire	1	250132.47174000	3743430.4802800
W43A2G10009	Maxey Range Complex	West Area	20130905	CD	Barb wire	3	250122.39536500	3743430.7435000
W43A2G10010	Maxey Range Complex	West Area	20130905	CD	Barb wire	2	250123.75156500	3743431.2805200
W43A2G10011	Maxey Range Complex	West Area	20130905	CD	Barb wire	2	250121.53883200	3743431.0083100
W43A2G10012	Maxey Range Complex	West Area	20130905	CD	Barb wire	2	250125.16550900	3743430.6869400
W43A2G10013	Maxey Range Complex	West Area	20130905	CD	Barb wire	1	250122.31209800	3743431.6018600
W43A2G10014	Maxey Range Complex	West Area	20130905	CD	Barb wire	1	250120.07742300	3743430.9651600
W43A2G10015	Maxey Range Complex	West Area	20130905	SA	5.56mm bullet	2	250131.69265300	3743443.7531000
W43A2G10016	Maxey Range Complex	West Area	20130905	CD	Barb wire	2	250131.10466700	3743431.3971400
W44A2T001	Maxey Range Complex	West Area	20130628	MEC	2.36 Rocket	0	251404.00000000	3743332.0000000
W44A2G10001	Maxey Range Complex	West Area	20130830	S	Seed	3	252156.36243400	3743334.9797000
W44A2G10002	Maxey Range Complex	West Area	20130830	MD	Frag	6	252162.52223400	3743345.5320000
W44A2G10003	Maxey Range Complex	West Area	20130830	MD	Frag	3	252156.90592200	3743348.1178000
W44A2G10004	Maxey Range Complex	West Area	20130830	MD	Frag	4	252170.52032500	3743344.9038800
W44A2G10005	Maxey Range Complex	West Area	20130830	MD	Frag	3	252158.42616000	3743337.8145100
W44A2G10006	Maxey Range Complex	West Area	20130830	MD	Frag	4	252170.51457900	3743340.1034100
W44A2G10007	Maxey Range Complex	West Area	20130830	MD	Frag	4	252169.73606200	3743335.6134400
W44A2G10008	Maxey Range Complex	West Area	20130830	MD	Frag	3	252158.80384600	3743341.4608300
W44A2G10009	Maxey Range Complex	West Area	20130830	MD	Frag	3	252158.66702000	3743333.7725400
W44A2G10010	Maxey Range Complex	West Area	20130830	MD	Frag	4	252159.36482000	3743333.2021900
W44A2G10011	Maxey Range Complex	West Area	20130830	MD	Frag	4	252159.77626500	3743344.0800000
W44A2G10012	Maxey Range Complex	West Area	20130830	MD	Frag	1	252163.94836000	3743338.9065100
W44A2G10013	Maxey Range Complex	West Area	20130830	MD	Frag	4	252159.30218000	3743347.3319900
W44A2G10014	Maxey Range Complex	West Area	20130830	MD	Frag	3	252170.35387500	3743343.9169600
W44A2G10015	Maxey Range Complex	West Area	20130830	MD	Frag	4	252165.40275300	3743344.5344200
W44A2G10016	Maxey Range Complex	West Area	20130830	MD	Frag	6	252162.61772800	3743347.4420600
W44A2G10017	Maxey Range Complex	West Area	20130830	MD	Frag	4	252159.24444300	3743339.1381300
W44A2G10018	Maxey Range Complex	West Area	20130830	MD	Frag	3	252171.67255100	3743345.2571100
W44A2G10019	Maxey Range Complex	West Area	20130830	MD	Frag	4	252160.18029300	3743340.4652300
W44A2G10020	Maxey Range Complex	West Area	20130830	MD	Frag	4	252155.84051800	3743343.7416200
W44A2G10021	Maxey Range Complex	West Area	20130830	MD	Frag	5	252165.49061100	3743338.6193700
W44A2G10022	Maxey Range Complex	West Area	20130830	MD	Frag	4	252167.70420800	3743337.5804600
W44A2G10023	Maxey Range Complex	West Area	20130830	MD	Frag	4	252156.27323800	3743341.0110600
W44A2G10024	Maxey Range Complex	West Area	20130830	MD	Frag	3	252161.65877200	3743333.2886800
W44A2G10025	Maxey Range Complex	West Area	20130830	MD	Frag	3	252169.27787600	3743333.6654300
W44A2G10026	Maxey Range Complex	West Area	20130830	MD	Frag	6	252168.75058900	3743345.0903700
W44A2G10027	Maxey Range Complex	West Area	20130830	MD	Frag	4	252156.61530900	3743344.8534400
W44A2G10028	Maxey Range Complex	West Area	20130830	MD	Frag	8	252160.65477400	3743344.6912100
W44A2G10029	Maxey Range Complex	West Area	20130830	MD	Frag	3	252169.94899600	3743332.4100000
W44A2G10030	Maxey Range Complex	West Area	20130830	MD	Frag	3	252166.21291000	3743333.0347200
W44A2G10031	Maxey Range Complex	West Area	20130830	MD	Frag	3	252155.05124600	3743335.9018300
W44A2G10032	Maxey Range Complex	West Area	20130830	MD	Frag	3	252165.11438500	3743336.0258600

W44A2G20008	Maxey Range Complex	West Area	20130820	MD	Frag pit	6	251406.71601500	3743361.2843800
W44A2G20009	Maxey Range Complex	West Area	20130820	MD	Frag Pit	4	251417.19886000	3743348.7448200
W44A2G20012	Maxey Range Complex	West Area	20130820	MD	Frag Pit	6	251415.48501800	3743356.6569600
W44A2G20018	Maxey Range Complex	West Area	20130820	MD	Frag Pit	4	251416.43306200	3743360.5099100
W44A2G20019	Maxey Range Complex	West Area	20130820	MD	Frag Pit	8	251412.83255300	3743358.4476500
W44A2G20023	Maxey Range Complex	West Area	20130820	MD	Frag Pit	4	251416.29864900	3743359.5855100
W44A2G20027	Maxey Range Complex	West Area	20130820	MD	Frag Pit	2	251415.57948800	3743363.8345000
W44A2G20028	Maxey Range Complex	West Area	20130820	MD	Frag Pit	6	251418.14319600	3743356.5192000
W44A2G20033	Maxey Range Complex	West Area	20130820	MD	Frag	6	251417.12272000	3743350.2264700
W44A2G20062	Maxey Range Complex	West Area	20130820	MD	Frag Pit	3	251409.59498100	3743355.5130500
W44A2G20072	Maxey Range Complex	West Area	20130820	MD	Frag Pit	6	251417.43471300	3743358.8530000
W44A2G20073	Maxey Range Complex	West Area	20130820	MD	Frag Pit	4	251404.72347500	3743355.2433800
W44A2G20074	Maxey Range Complex	West Area	20130820	MD	Frag Pit	6	251409.91256000	3743351.6697200
W44A2G20078	Maxey Range Complex	West Area	20130820	MD	Frag Pit	1	251412.96252000	3743354.5222500
W44A2G20080	Maxey Range Complex	West Area	20130820	MD	Frag Pit	6	251411.40635700	3743360.9105600
W44A2G20086	Maxey Range Complex	West Area	20130820	MD	Frag Pit	3	251409.50957900	3743362.6212800
W44A2G20088	Maxey Range Complex	West Area	20130820	MD	Frag Pit	8	251415.25339400	3743359.8182400
W44A2G20090	Maxey Range Complex	West Area	20130820	MD	Frag Pit	4	251407.98125800	3743364.3975300
W44A2G20092	Maxey Range Complex	West Area	20130820	MD	Frag Pit	4	251411.92302300	3743360.0871900
W44A2G20093	Maxey Range Complex	West Area	20130820	MD	Frag Pit	4	251407.23484700	3743356.5790200
W44A2G30001	Maxey Range Complex	West Area	20130820	MD	Frag	2	250844.95759800	3743322.4527300
W44A2G30003	Maxey Range Complex	West Area	20130820	MD	Frag	2	250839.53958900	3743316.9100300
W44A2G30005	Maxey Range Complex	West Area	20130923	MD	Frag	3	250836.37941500	3743312.9341300
W44A2G30007	Maxey Range Complex	West Area	20130820	MD	Frag	6	250839.91831000	3743319.5663500
W44A2G30011	Maxey Range Complex	West Area	20130820	MD	Frag	2	250840.28699100	3743316.6422700
W44A2G30013	Maxey Range Complex	West Area	20130820	MD	Frag	4	250847.23828900	3743314.3631800
W44A2G30025	Maxey Range Complex	West Area	20130923	MD	Frag	3	250836.40339400	3743311.4779700
W44A2G30039	Maxey Range Complex	West Area	20130820	MD	Frag	6	250840.85986900	3743309.1289600
W44A2G30047	Maxey Range Complex	West Area	20130820	NC	NC	0	250840.09900900	3743312.3510300
W44A2G30048	Maxey Range Complex	West Area	20130820	MD	Frag	6	250838.44600900	3743324.3937700
W44A2G30054	Maxey Range Complex	West Area	20130820	MD	Frag	3	250838.20642400	3743310.8273900
W44A2G30055	Maxey Range Complex	West Area	20130820	MD	Frag	0	250839.86283600	3743311.7006100
W44A2G30057	Maxey Range Complex	West Area	20130820	MD	Frag	3	250847.05305100	3743312.9261900
W45A1G10001	Maxey Range Complex	West Area	20130912	S	Seed	10	251933.35823800	3742741.5513900
W45A1G10002	Maxey Range Complex	West Area	20130912	MD	Frag	6	251933.96189400	3742736.9001400
W45A1G10003	Maxey Range Complex	West Area	20130912	MD	Frag	7	251932.11056400	3742741.7986100
W45A1G10004	Maxey Range Complex	West Area	20130912	CD	Barb Wire	1	251925.23223900	3742731.2887200
W45A1G10005	Maxey Range Complex	West Area	20130912	CD	Nails	2	251922.65477800	3742731.1710700
W45A1G10006	Maxey Range Complex	West Area	20130912	CD	Scrap Metal	0	251936.61386700	3742739.8759600
W45A1G10007	Maxey Range Complex	West Area	20130912	MD	Frag	3	251927.96322000	3742734.2468600
W45A1G10008	Maxey Range Complex	West Area	20130912	MD	Frag	4	251927.36708400	3742735.2101300
W45A1G10009	Maxey Range Complex	West Area	20130912	MD	Frag	4	251925.34555400	3742738.4991100
W45A1G10010	Maxey Range Complex	West Area	20130912	MD	Frag	6	251925.97923500	3742737.1426600
W45A1G10011	Maxey Range Complex	West Area	20130912	MD	Frag	8	251931.12224100	3742737.9206800
W45A1G10012	Maxey Range Complex	West Area	20130912	MD	Frag	3	251929.93417300	3742731.1151000
W45A1G10013	Maxey Range Complex	West Area	20130912	MD	Frag	3	251929.34022300	3742733.0922500
W45A1G10014	Maxey Range Complex	West Area	20130912	MD	Frag	6	251936.88850500	3742737.1765900
W45A1G10015	Maxey Range Complex	West Area	20130912	MD	Frag	3	251928.58101200	3742732.6327000
W45A1G10016	Maxey Range Complex	West Area	20130912	MD	Frag	4	251924.24036200	3742743.5298700
W45A1G10017	Maxey Range Complex	West Area	20130912	MD	Frag	1	251923.70885400	3742735.8666600
W45A1G10018	Maxey Range Complex	West Area	20130912	CD	Nails	3	251927.81235600	3742742.6730000
W45A1G10019	Maxey Range Complex	West Area	20130912	MD	Frag	3	251928.70019800	3742731.4305600
W45A1G10020	Maxey Range Complex	West Area	20130912	MD	Frag	3	251926.30955100	3742736.1809800
W45A1G10021	Maxey Range Complex	West Area	20130912	MD	Frag	3	251927.80209800	3742731.8872600
W45A2T001	Maxey Range Complex	West Area	20130701	MEC	105 mm Smoke Canister	0	251385.00000000	3743221.0000000
W45A2G10001	Maxey Range Complex	West Area	20130829	MD	Empty 155 Illum	24	252969.33416300	3743285.7720800
W45A2G10002	Maxey Range Complex	West Area	20130829	S	Seed	3	252973.97873200	3743284.3714500
W45A2G10003	Maxey Range Complex	West Area	20130829	MD	Frag Pit	12	252964.61213400	3743272.7331000
W45A2G10004	Maxey Range Complex	West Area	20130829	MD	Frag Pit	12	252964.11692200	3743272.8720100
W45A2G10005	Maxey Range Complex	West Area	20130829	MD	Frag Pit	8	252969.62728500	3743279.3937700
W45A2G10006	Maxey Range Complex	West Area	20130829	MD	Frag Pit	6	252968.31069700	3743277.4366300
W45A2G10007	Maxey Range Complex	West Area	20130829	MD	Frag Pit	6	252969.33586200	3743278.0256400
W45A2G10008	Maxey Range Complex	West Area	20130829	MD	Frag Pit	10	252967.83282200	3743278.9015600
W45A2G10009	Maxey Range Complex	West Area	20130829	MD	Frag Pit	4	252968.61382600	3743278.8107900
W45A2G10010	Maxey Range Complex	West Area	20130829	MD	Frag Pit	10	252963.76043200	3743279.3748600
W45A2G10011	Maxey Range Complex	West Area	20130829	MD	Frag Pit	6	252968.82724300	3743280.1939700
W45A2G10012	Maxey Range Complex	West Area	20130829	MD	Frag Pit	4	252975.46001000	3743272.6752100
W45A2G10013	Maxey Range Complex	West Area	20130829	MD	Frag	5	252977.15475300	3743271.1172900
W45A2G10014	Maxey Range Complex	West Area	20130829	MD	Frag	6	252966.41867600	3743281.2052700
W45A2G10015	Maxey Range Complex	West Area	20130829	MD	Frag	4	252973.27380700	3743285.1693300
W45A2G10016	Maxey Range Complex	West Area	20130829	MD	Frag	3	252964.64784700	3743274.2555400
W45A2G10017	Maxey Range Complex	West Area	20130829	MD	Frag	4	252976.83195500	3743279.2049800
W45A2G10018	Maxey Range Complex	West Area	20130829	MD	Frag	6	252965.31473100	3743283.5026400
W45A2G10019	Maxey Range Complex	West Area	20130829	MD	Frag	6	252975.32699700	3743273.8787500
W45A2G10020	Maxey Range Complex	West Area	20130829	MD	Frag	6	252970.36560200	3743276.5165400

W45A2G10021	Maxey Range Complex	West Area	20130829	MD	Frag	3	252968.37917000	3743284.4973900
W45A2G10022	Maxey Range Complex	West Area	20130829	MD	Frag	4	252976.29225900	3743278.5947500
W45A2G10023	Maxey Range Complex	West Area	20130829	MD	Frag	6	252977.49042300	3743272.9897800
W45A2G10024	Maxey Range Complex	West Area	20130829	MD	Frag	4	252964.71298200	3743279.9829200
W45A2G10025	Maxey Range Complex	West Area	20130829	MD	Frag	4	252971.98454500	3743281.9928500
W45A2G10026	Maxey Range Complex	West Area	20130829	MD	Frag	6	252971.89267100	3743280.6265600
W45A2G10027	Maxey Range Complex	West Area	20130829	MD	Frag	4	252975.04145000	3743276.5555100
W45A2G10028	Maxey Range Complex	West Area	20130829	MD	Frag	4	252974.15827300	3743282.9676500
W45A2G10029	Maxey Range Complex	West Area	20130829	MD	Frag	8	252965.57685900	3743286.3469300
W45A2G10030	Maxey Range Complex	West Area	20130829	MD	Frag	4	252974.70045800	3743273.3441700
W45A2G10031	Maxey Range Complex	West Area	20130829	MD	Frag	4	252963.92376300	3743275.7566600
W45A2G10032	Maxey Range Complex	West Area	20130829	MD	Frag	6	252972.36312800	3743274.2427700
W45A2G10033	Maxey Range Complex	West Area	20130829	MD	Frag	6	252974.46137000	3743274.7245200
W45A2G10034	Maxey Range Complex	West Area	20130829	MD	Frag	6	252970.65173900	3743281.3655000
W45A2G10035	Maxey Range Complex	West Area	20130829	MD	Frag	5	252966.39290000	3743276.9346600
W45A2G10036	Maxey Range Complex	West Area	20130829	MD	Frag	6	252970.72940000	3743271.6297200
W45A2G10037	Maxey Range Complex	West Area	20130829	MD	Frag	6	252968.10386200	3743273.2406000
W45A2G10038	Maxey Range Complex	West Area	20130829	MD	Frag	4	252975.66005900	3743277.9918800
W45A2G10039	Maxey Range Complex	West Area	20130829	MD	Frag	6	252970.06357200	3743273.7645500
W45A2G10040	Maxey Range Complex	West Area	20130829	MD	Frag	6	252965.61797400	3743275.5907100
W45A2G10041	Maxey Range Complex	West Area	20130829	MD	Frag	6	252974.04698000	3743275.4468100
W45A2G10042	Maxey Range Complex	West Area	20130829	MD	Frag	6	252971.64468200	3743272.9324700
W45A2G10043	Maxey Range Complex	West Area	20130829	MD	Frag	4	252969.71762000	3743281.4877700
W45A2G10044	Maxey Range Complex	West Area	20130829	MD	Frag	4	252969.37467900	3743273.1300100
W45A2G10045	Maxey Range Complex	West Area	20130829	MD	Frag	6	252972.15850100	3743284.6432200
W45A2G10046	Maxey Range Complex	West Area	20130829	MD	Frag	3	252963.57621500	3743277.9522300
W45A2G10047	Maxey Range Complex	West Area	20130829	MD	Frag	3	252967.71716900	3743284.5937900
W45A2G10048	Maxey Range Complex	West Area	20130829	MD	Frag	6	252965.65253900	3743281.3027300
W45A2G10049	Maxey Range Complex	West Area	20130829	MD	Frag	6	252974.36326400	3743280.1945500
W45A2G20001	Maxey Range Complex	West Area	20130905	CD	Scrap Metal	1	249553.92085800	3743227.1145700
W45A2G20002	Maxey Range Complex	West Area	20130905	CD	Scrap Metal	0	249554.06544900	3743226.5149600
W45A2G20003	Maxey Range Complex	West Area	20130905	S	Seed	4	249546.74134300	3743220.2432300
W45A2G20004	Maxey Range Complex	West Area	20130905	CD	Rebar	1	249556.51990200	3743224.2171100
W45A2G20005	Maxey Range Complex	West Area	20130905	CD	Trash Pit	2	249548.44450900	3743229.2934300
W45A2G20006	Maxey Range Complex	West Area	20130905	CD	Trash Pit/ wire	0	249555.58129600	3743228.4190400
W45A2G20007	Maxey Range Complex	West Area	20130905	CD	Scrap Metal	2	249551.81572900	3743229.3109600
W45A2G20008	Maxey Range Complex	West Area	20130905	CD	nail pit/ barb wire	3	249551.63806700	3743228.6855500
W45A2G20009	Maxey Range Complex	West Area	20130905	CD	trash pit	3	249546.85450800	3743229.1655100
W45A2G20010	Maxey Range Complex	West Area	20130905	CD	Trash Pit	3	249545.98981200	3743229.9283200
W45A2G20011	Maxey Range Complex	West Area	20130905	CD	Trash Pit	1	249556.05906500	3743227.0288400
W45A2G20012	Maxey Range Complex	West Area	20130905	CD	barb wire	1	249553.98834400	3743228.2118800
W45A2G20013	Maxey Range Complex	West Area	20130905	CD	Trash Pit	2	249558.66678200	3743227.8946800
W45A2G20014	Maxey Range Complex	West Area	20130905	CD	Scrap Metal	0	249557.50428300	3743220.2390800
W45A2G20015	Maxey Range Complex	West Area	20130905	CD	wire	1	249545.24930000	3743229.2738300
W45A2G20016	Maxey Range Complex	West Area	20130905	CD	nail pit	3	249550.12168900	3743223.6844600
W45A2G20017	Maxey Range Complex	West Area	20130905	CD	Scrap Metal	3	249549.27555000	3743228.2175900
W45A2G20018	Maxey Range Complex	West Area	20130905	CD	Trash Pit	3	249547.52196000	3743229.6689600
W45A2G20019	Maxey Range Complex	West Area	20130905	CD	nail pit	2	249558.21720400	3743220.5029700
W45A2G20020	Maxey Range Complex	West Area	20130905	CD	nail pit/ wire	2	249558.49080600	3743222.1419600
W45A2G20021	Maxey Range Complex	West Area	20130905	CD	horse shoe	2	249553.22627000	3743228.7355400
W45A2G20022	Maxey Range Complex	West Area	20130905	CD	Trash Pit	2	249557.58728700	3743220.7857000
W45A2G20023	Maxey Range Complex	West Area	20130905	CD	nail pit	4	249543.67068500	3743229.1459000
W45A2G20024	Maxey Range Complex	West Area	20130905	CD	barb wire	0	249543.57605200	3743229.8556100
W45A2G20025	Maxey Range Complex	West Area	20130905	CD	Scrap Metal	1	249547.71975700	3743228.0099100
W45A2G20026	Maxey Range Complex	West Area	20130905	CD	nail pit/ wire	1	249559.43746400	3743228.3732800
W45A2G20027	Maxey Range Complex	West Area	20130905	CD	nail pit	2	249550.05229300	3743228.7927300
W45A2G20028	Maxey Range Complex	West Area	20130905	CD	nail pit/ wire	2	249546.71056400	3743223.2674400
W45A2G20029	Maxey Range Complex	West Area	20130905	CD	nail pit/horse shoe	2	249559.12943700	3743225.9676200
W45A2G20030	Maxey Range Complex	West Area	20130905	CD	nail pit/ wire	2	249551.44973500	3743217.2209900
W45A2G20031	Maxey Range Complex	West Area	20130905	CD	wire	2	249546.76640700	3743222.6159400
W45A2G20032	Maxey Range Complex	West Area	20130905	CD	Trash Pit	2	249543.77585400	3743228.3571600
W45A2G20033	Maxey Range Complex	West Area	20130905	CD	nail pit/wire	2	249552.08365800	3743217.6453300
W45A2G20034	Maxey Range Complex	West Area	20130905	CD	nail pit	5	249551.51425100	3743221.1483100
W45A2G20035	Maxey Range Complex	West Area	20130905	CD	Trash Pit	2	249554.04618900	3743229.1524300
W45A2G20036	Maxey Range Complex	West Area	20130905	CD	Trash Pit	2	249550.84211500	3743226.1473400
W45A2G20037	Maxey Range Complex	West Area	20130905	CD	Trash Pit	2	249546.11524100	3743228.5108300
W45A2G20038	Maxey Range Complex	West Area	20130905	CD	Trash Pit/wire	3	249557.68685200	3743226.4618500
W45A2G20039	Maxey Range Complex	West Area	20130905	CD	nail pit/ wire	3	249545.19789900	3743217.6922400
W45A2G20040	Maxey Range Complex	West Area	20130905	CD	nail pit	3	249551.61614600	3743227.3511400
W45A2G20041	Maxey Range Complex	West Area	20130905	CD	wire	2	249546.49873300	3743224.1769100
W45A2G20042	Maxey Range Complex	West Area	20130905	CD	Trash Pit	4	249550.84311700	3743226.8542500
W45A2G20043	Maxey Range Complex	West Area	20130905	CD	Scrap Metal	3	249546.30802900	3743226.3320900
W46A1G10001	Maxey Range Complex	West Area	20130912	S	Seed	1	254326.11985900	3743143.3885100
W46A1G10002	Maxey Range Complex	West Area	20130912	MD	Frag	1	254330.19757400	3743154.5941800
W46A1G10003	Maxey Range Complex	West Area	20130912	MD	Frag	2	254336.43624900	3743150.5022000

W46A1G10004	Maxey Range Complex	West Area	20130912	CD	Trash Pit	3	254330.85783400	3743142.6582400
W46A1G10005	Maxey Range Complex	West Area	20130912	MD	Frag	2	254326.87243800	3743145.8061900
W46A1G10006	Maxey Range Complex	West Area	20130912	MD	Frag	2	254325.78645800	3743144.6771900
W46A1G10007	Maxey Range Complex	West Area	20130912	CD	Trash Pit	1	254336.55590600	3743142.4760100
W46A1G10008	Maxey Range Complex	West Area	20130912	MD	Frag	4	254331.42884300	3743154.3859500
W46A1G10009	Maxey Range Complex	West Area	20130912	MD	Frag	1	254325.69072000	3743151.1794600
W46A1G10010	Maxey Range Complex	West Area	20130912	MD	Frag	6	254328.10433300	3743148.8000900
W46A1G10011	Maxey Range Complex	West Area	20130912	CD	Tin Can	0	254329.11517100	3743149.3302900
W46A1G10012	Maxey Range Complex	West Area	20130912	CD	Trash Pit	2	254336.67892900	3743140.4082800
W46A1G10013	Maxey Range Complex	West Area	20130912	CD	Tin Cans	0	254331.01463200	3743147.7692500
W46A1G10014	Maxey Range Complex	West Area	20130912	MD	Frag	3	254327.29602400	3743146.5599800
W46A1G10015	Maxey Range Complex	West Area	20130912	CD	Tin Can	0	254331.49648100	3743149.1294200
W46A1G10016	Maxey Range Complex	West Area	20130912	CD	Trash Pit	2	254328.23009900	3743146.8684400
W46A1G10017	Maxey Range Complex	West Area	20130912	MD	Frag	4	254330.87544000	3743149.6796900
W46A1G10018	Maxey Range Complex	West Area	20130912	MD	Frag	2	254334.74552100	3743151.4319500
W46A1G10019	Maxey Range Complex	West Area	20130912	MD	Frag	4	254334.98905100	3743142.6950100
W46A1G10020	Maxey Range Complex	West Area	20130912	MD	Frag	3	254328.66309400	3743150.3467400
W46A1G10021	Maxey Range Complex	West Area	20130912	MD	Frag	3	254334.07766900	3743144.8170700
W46A1G10022	Maxey Range Complex	West Area	20130912	MD	Frag	1	254326.69399500	3743151.6803800
W46A1G10023	Maxey Range Complex	West Area	20130912	MD	Frag	2	254323.09317600	3743144.1270400
W47A2G10001	Maxey Range Complex	West Area	20130830	S	Seed	3	252316.64811800	3743042.7081600
W47A2G10002	Maxey Range Complex	West Area	20130830	MD	Frag	4	252320.40860700	3743038.3935300
W47A2G10003	Maxey Range Complex	West Area	20130830	MD	Frag	6	252325.60787800	3743047.7088100
W47A2G10004	Maxey Range Complex	West Area	20130830	MD	Frag	10	252320.00371700	3743041.1502100
W47A2G10005	Maxey Range Complex	West Area	20130830	MD	Frag	9	252319.57619400	3743040.4681000
W47A2G10006	Maxey Range Complex	West Area	20130830	MD	Frag	6	252314.57904000	3743039.7522700
W47A2G10007	Maxey Range Complex	West Area	20130830	MD	Frag	4	252314.38245700	3743040.4120200
W47A2G10008	Maxey Range Complex	West Area	20130830	MD	Frag	3	252316.21867900	3743036.0219300
W47A2G10009	Maxey Range Complex	West Area	20130830	MD	Frag	3	252322.71699000	3743035.0929100
W47A2G10010	Maxey Range Complex	West Area	20130830	MD	Frag	3	252316.90132400	3743036.8962200
W47A2G10011	Maxey Range Complex	West Area	20130830	MD	Frag	4	252318.70319100	3743036.6584400
W47A2G10012	Maxey Range Complex	West Area	20130830	MD	Frag	4	252325.05937900	3743037.1520200
W47A2G10013	Maxey Range Complex	West Area	20130830	MD	Frag	13	252319.16137700	3743039.1972200
W47A2G10014	Maxey Range Complex	West Area	20130830	MD	Frag	3	252324.63505500	3743037.8701600
W47A2G10015	Maxey Range Complex	West Area	20130830	MD	Frag	3	252320.18967800	3743048.1607700
W47A2G10016	Maxey Range Complex	West Area	20130830	MD	Frag	4	252322.79895400	3743047.2894400
W47A2G10017	Maxey Range Complex	West Area	20130830	MD	Frag	4	252322.32437300	3743042.3422900
W47A2G10018	Maxey Range Complex	West Area	20130830	MD	Frag	3	252322.50029900	3743047.9680300
W47A2G10019	Maxey Range Complex	West Area	20130830	MD	Frag	3	252312.79723000	3743048.1505800
W47A2G10020	Maxey Range Complex	West Area	20130830	MD	Frag	2	252324.39230500	3743045.8351900
W47A2G10021	Maxey Range Complex	West Area	20130830	MD	Frag	3	252310.17326500	3743036.5309100
W47A2G10022	Maxey Range Complex	West Area	20130830	MD	Frag	3	252313.51182700	3743046.2005700
W47A2G10023	Maxey Range Complex	West Area	20130830	MD	Frag	8	252317.09135400	3743038.0795000
W47A2G10024	Maxey Range Complex	West Area	20130830	MD	Frag	4	252319.53989200	3743043.6925000
W47A2G10025	Maxey Range Complex	West Area	20130830	MD	Frag	3	252321.84799700	3743044.7629900
W47A2G10026	Maxey Range Complex	West Area	20130830	MD	Frag	3	252323.45825100	3743046.5768500
W47A2G10027	Maxey Range Complex	West Area	20130830	MD	Frag	4	252314.94016200	3743035.8760000
W47A2G10028	Maxey Range Complex	West Area	20130830	MD	Frag	10	252321.36646900	3743041.5470800
W47A2G20002	Maxey Range Complex	West Area	20130904	MD	Frag	6	251845.99097400	3743037.2956400
W47A2G20003	Maxey Range Complex	West Area	20130904	MD	Frag	4	251846.83851000	3743036.0848800
W47A2G20004	Maxey Range Complex	West Area	20130904	MD	Frag	4	251846.70431800	3743036.6141800
W47A2G20005	Maxey Range Complex	West Area	20130904	MD	Frag	10	251840.97020200	3743039.9863400
W47A2G20006	Maxey Range Complex	West Area	20130904	MD	Frag	6	251845.34167500	3743043.1571000
W47A2G20007	Maxey Range Complex	West Area	20130904	MD	Frag	6	251848.11320300	3743031.1404000
W47A2G20008	Maxey Range Complex	West Area	20130904	MD	Frag	6	251845.28416000	3743033.0996700
W47A2G20009	Maxey Range Complex	West Area	20130904	MD	Frag	7	251850.43392900	3743043.0657600
W47A2G20010	Maxey Range Complex	West Area	20130904	MD	Frag	12	251853.84798900	3743037.6634100
W47A2G20011	Maxey Range Complex	West Area	20130904	MD	Frag	3	251843.82489800	3743043.3162700
W47A2G20012	Maxey Range Complex	West Area	20130904	MD	Frag	8	251840.27763100	3743037.5590400
W47A2G20013	Maxey Range Complex	West Area	20130904	MD	Frag	12	251843.09904800	3743044.2201300
W47A2G20014	Maxey Range Complex	West Area	20130904	MD	Frag	12	251847.41165000	3743033.6700100
W47A2G20015	Maxey Range Complex	West Area	20130904	MD	Frag	6	251852.40444800	3743036.2189700
W47A2G20016	Maxey Range Complex	West Area	20130904	MD	Frag	7	251852.49912800	3743045.3668100
W47A2G20017	Maxey Range Complex	West Area	20130904	MD	Frag	4	251852.36999700	3743032.8903900
W47A2G20018	Maxey Range Complex	West Area	20130904	MD	Frag	6	251850.26347000	3743035.7278200
W47A2G20019	Maxey Range Complex	West Area	20130904	MD	Frag	3	251850.97969200	3743036.2638700
W47A2G20020	Maxey Range Complex	West Area	20130904	MD	Frag	2	251840.85713100	3743034.9924200
W47A2G20021	Maxey Range Complex	West Area	20130904	MD	Frag	12	251853.75599500	3743030.4510100
W47A2G20022	Maxey Range Complex	West Area	20130904	MD	Frag	12	251843.83369000	3743041.1609400
W47A2G20023	Maxey Range Complex	West Area	20130904	MD	Frag	12	251840.98154900	3743038.7098500
W47A2G20024	Maxey Range Complex	West Area	20130904	MD	Frag	6	251853.90520200	3743042.1489900
W47A2G20025	Maxey Range Complex	West Area	20130904	MD	Frag	6	251851.10757600	3743030.6493300
W47A2G20026	Maxey Range Complex	West Area	20130904	MD	Frag	4	251846.70659900	3743039.7378200
W47A2G20027	Maxey Range Complex	West Area	20130904	MD	Frag	6	251844.57344500	3743033.7676000
W47A2G20028	Maxey Range Complex	West Area	20130904	MD	Frag	8	251848.13063900	3743036.7015800

W47A2G20029	Maxey Range Complex	West Area	20130904	MD	Frag	6	251849.60345200	3743045.1036700
W47A2G20030	Maxey Range Complex	West Area	20130904	MD	Frag	8	251853.10716900	3743035.3674900
W47A2G20031	Maxey Range Complex	West Area	20130904	MD	Frag	6	251839.53551100	3743040.0359000
W47A2G20032	Maxey Range Complex	West Area	20130904	MD	Frag	6	251844.64529300	3743031.8803400
W47A2G20033	Maxey Range Complex	West Area	20130904	MD	Frag	4	251848.13707200	3743038.7533200
W47A2G20034	Maxey Range Complex	West Area	20130904	MD	Frag	4	251845.99221000	3743034.6779900
W47A2G20035	Maxey Range Complex	West Area	20130904	MD	Frag	4	251851.72639200	3743039.9905300
W47A2G30001	Maxey Range Complex	West Area	20130904	S	Seed	3	250993.67612400	3743042.0254400
W47A2G30002	Maxey Range Complex	West Area	20130904	MD	Frag	3	251006.27842700	3743039.7121000
W47A2G30003	Maxey Range Complex	West Area	20130904	MD	Frag	2	250997.26876400	3743051.1858200
W47A2G30004	Maxey Range Complex	West Area	20130904	MD	Frag	2	250992.87484800	3743041.4561400
W47A2G30005	Maxey Range Complex	West Area	20130904	MD	Frag	3	250996.01648100	3743049.0657500
W47A2G30006	Maxey Range Complex	West Area	20130904	MD	Frag	3	251002.51875400	3743044.4244600
W47A2G30007	Maxey Range Complex	West Area	20130904	MD	Frag	2	250995.14138100	3743047.1353200
W47A2G30008	Maxey Range Complex	West Area	20130904	MD	Frag	3	250997.62183700	3743047.0696600
W47A2G30009	Maxey Range Complex	West Area	20130904	MD	Frag	3	250999.99988500	3743044.2866600
W47A2G30010	Maxey Range Complex	West Area	20130904	MD	Frag	2	251003.18601400	3743052.1991300
W47A2G30011	Maxey Range Complex	West Area	20130904	MD	Frag	1	250992.06132700	3743042.7287500
W47A2G30012	Maxey Range Complex	West Area	20130904	MD	Frag	3	251004.48740200	3743045.9747600
W47A2G30013	Maxey Range Complex	West Area	20130904	MD	Frag	3	250992.06417200	3743041.7686600
W47A2G30014	Maxey Range Complex	West Area	20130904	MD	Frag	2	250992.80945800	3743048.2871500
W47A2G30015	Maxey Range Complex	West Area	20130904	MD	Frag	3	251003.49249800	3743049.2160100
W47A2G30016	Maxey Range Complex	West Area	20130904	MD	Frag	2	250999.80559100	3743044.7839100
W47A2G30017	Maxey Range Complex	West Area	20130904	MD	Frag	2	251001.53052100	3743043.4667500
W47A2G30018	Maxey Range Complex	West Area	20130904	MD	Frag	1	250997.83944100	3743039.6230400
W47A2G30019	Maxey Range Complex	West Area	20130904	MD	Frag	4	250992.05135000	3743046.0954800
W47A2G30020	Maxey Range Complex	West Area	20130904	MD	Frag	2	251001.72498700	3743042.7421500
W47A2G30021	Maxey Range Complex	West Area	20130904	MD	Frag	2	250994.35270400	3743047.7638000
W47A2G30022	Maxey Range Complex	West Area	20130904	MD	Frag	3	250992.06014100	3743043.1290300
W47A2G30023	Maxey Range Complex	West Area	20130904	MD	Frag	3	251008.61109600	3743039.9242500
W47A2G30024	Maxey Range Complex	West Area	20130904	MD	Frag	4	251004.95961700	3743049.8322800
W47A2G30025	Maxey Range Complex	West Area	20130904	MD	Frag	4	250992.07600100	3743037.7770000
W47A2G30026	Maxey Range Complex	West Area	20130904	MD	Frag	3	251001.81230400	3743050.8312500
W47A2G30027	Maxey Range Complex	West Area	20130904	MD	Frag	3	251001.96720100	3743049.0977800
W47A2G30028	Maxey Range Complex	West Area	20130904	MD	Frag	3	251001.01712800	3743051.3041800
W47A2G30029	Maxey Range Complex	West Area	20130904	MD	Frag	3	251005.37662600	3743039.0266100
W47A2G30030	Maxey Range Complex	West Area	20130904	MD	Frag	3	250999.59626100	3743050.1086000
W47A2G30031	Maxey Range Complex	West Area	20130904	MD	Frag	1	251003.55208000	3743048.6360800
W47A2G30032	Maxey Range Complex	West Area	20130904	MD	Frag	2	250998.83993400	3743038.7056500
W47A2G30033	Maxey Range Complex	West Area	20130904	MD	Frag	3	251005.00365100	3743048.0506600
W47A2G30034	Maxey Range Complex	West Area	20130904	MD	Frag	2	251000.37431800	3743038.8857600
W47A2G30035	Maxey Range Complex	West Area	20130904	MD	Frag	3	251001.94246900	3743040.1115700
W47A2G30036	Maxey Range Complex	West Area	20130904	MD	Frag	3	250998.90040100	3743049.1040800
W47A2G30037	Maxey Range Complex	West Area	20130904	MD	Frag	3	250998.20080200	3743047.9399500
W47A2G30038	Maxey Range Complex	West Area	20130904	MD	Frag	2	251002.71908600	3743047.6749100
W47A2G30039	Maxey Range Complex	West Area	20130904	MD	Frag	4	251003.40737400	3743050.0445500
W47A2G30040	Maxey Range Complex	West Area	20130904	MD	Frag	0	251007.39732500	3743042.8524600
W47A2G30041	Maxey Range Complex	West Area	20130904	MD	Frag	3	250996.21366300	3743038.8948700
W47A2G30042	Maxey Range Complex	West Area	20130904	MD	Frag	4	250995.22000100	3743044.4644700
W47A2G30043	Maxey Range Complex	West Area	20130904	MD	Frag	1	250995.99186000	3743045.0442000
W47A2G30044	Maxey Range Complex	West Area	20130904	MD	Frag	3	251000.44789400	3743048.8963700
W47A2G30045	Maxey Range Complex	West Area	20130904	MD	Frag	3	251005.68406800	3743043.5949500
W48A1G10001	Maxey Range Complex	West Area	20130912	S	Seed	3	253983.38301000	3742932.5640000
W48A1G10002	Maxey Range Complex	West Area	20130912	MD	Frag	3	253978.03906900	3742933.2700200
W48A1G10003	Maxey Range Complex	West Area	20130912	MD	Frag	8	253981.94594700	3742938.6225200
W48A1G10004	Maxey Range Complex	West Area	20130912	MD	Frag	2	253975.21357200	3742931.0214800
W48A1G10005	Maxey Range Complex	West Area	20130912	MD	Frag	1	253971.41513200	3742930.3714400
W48A1G10006	Maxey Range Complex	West Area	20130912	MD	Frag	3	253981.64208500	3742941.4998200
W48A1G10007	Maxey Range Complex	West Area	20130912	MD	Frag	3	253976.50984400	3742929.8772500
W48A1G10008	Maxey Range Complex	West Area	20130912	MD	Frag	5	253973.29796000	3742942.1674800
W48A1G10009	Maxey Range Complex	West Area	20130912	MD/CD	Frag/Chain	4	253987.13713900	3742931.1062900
W48A1G10010	Maxey Range Complex	West Area	20130912	MD	Frag	4	253975.62964500	3742937.2745900
W48A1G10011	Maxey Range Complex	West Area	20130912	MD	Frag	3	253985.88242600	3742937.4598600
W48A1G10012	Maxey Range Complex	West Area	20130912	MD	Frag	5	253981.72077500	3742934.6061200
W48A1G10013	Maxey Range Complex	West Area	20130912	MD	Frag	8	253988.03166200	3742933.7708800
W48A1G10014	Maxey Range Complex	West Area	20130912	MD	Frag	4	253972.95683500	3742941.0605600
W48A1G10015	Maxey Range Complex	West Area	20130912	CD	Nails	2	253985.57570400	3742936.7658000
W48A1G10016	Maxey Range Complex	West Area	20130912	MD	Frag	4	253978.45482500	3742935.1186300
W48A1G10017	Maxey Range Complex	West Area	20130912	MD	Frag	8	253980.36999900	3742939.5860300
W48A1G10018	Maxey Range Complex	West Area	20130912	MD	Frag	2	253973.92556800	3742933.0018600
W48A1G10019	Maxey Range Complex	West Area	20130912	MD	Frag	4	253978.57439400	3742928.8747900
W48A1G10020	Maxey Range Complex	West Area	20130912	MD	Frag	4	253973.60061000	3742939.8423800
W48A1G10021	Maxey Range Complex	West Area	20130912	MD	Frag	2	253984.36222600	3742938.5375800
W48A1G10022	Maxey Range Complex	West Area	20130912	MD	Frag	2	253979.41900600	3742929.1839400
W48A1G10023	Maxey Range Complex	West Area	20130912	MD	Frag	3	253979.32774900	3742942.9281700

W48A1G10024	Maxey Range Complex	West Area	20130912	MD	Frag	3	253974.43562900	3742935.1952400
W49A2G10001	Maxey Range Complex	West Area	20130830	S	Seed	1	252500.67826300	3742843.7949700
W49A2G10002	Maxey Range Complex	West Area	20130830	CD	Tire Iron	1	252499.86240400	3742845.0731700
W49A2G10003	Maxey Range Complex	West Area	20130830	S	Seed	1	252500.71569200	3742844.2355300
W49A2G10004	Maxey Range Complex	West Area	20130830	MD	Frag	3	252501.36228200	3742843.0050500
W49A2G10005	Maxey Range Complex	West Area	20130830	CD	Soda Can	1	252498.53850600	3742845.0597900
W49A2G10006	Maxey Range Complex	West Area	20130830	CD	Beer Can	1	252499.89081800	3742843.3642700
W49A2G10007	Maxey Range Complex	West Area	20130830	MD	Frag	8	252500.44030400	3742840.9940400
W49A2G10008	Maxey Range Complex	West Area	20130830	MD	Frag	4	252507.49089700	3742832.0416200
W49A2G10009	Maxey Range Complex	West Area	20130830	MD	Frag	6	252507.25291500	3742831.2833400
W49A2G10010	Maxey Range Complex	West Area	20130830	MD	Frag	3	252498.69530200	3742838.2673900
W49A2G10011	Maxey Range Complex	West Area	20130830	MD	Frag	6	252508.11166000	3742832.6027600
W49A2G10012	Maxey Range Complex	West Area	20130830	MD	Frag	6	252500.61386800	3742834.0771100
W49A2G10013	Maxey Range Complex	West Area	20130830	MD	Frag	4	252502.33109000	3742845.6388400
W49A2G10014	Maxey Range Complex	West Area	20130830	MD	Frag	6	252497.48499200	3742841.6602100
W49A2G10015	Maxey Range Complex	West Area	20130830	MD	Frag	6	252501.55622400	3742836.2691500
W50A4G10001	Maxey Range Complex	West Area	20130904	S	Seed	4	251934.31301000	3742742.1523400
W50A4G10002	Maxey Range Complex	West Area	20130904	MD	Frag	8	251924.10391600	3742733.8883500
W50A4G10003	Maxey Range Complex	West Area	20130904	MD	Frag	8	251926.78390800	3742744.0618400
W50A4G10004	Maxey Range Complex	West Area	20130904	MD	Frag	4	251933.49960000	3742741.9713000
W50A4G10005	Maxey Range Complex	West Area	20130904	MD	Frag	4	251933.96805800	3742736.9923400
W50A4G10006	Maxey Range Complex	West Area	20130904	MD	Frag	1	251932.61028200	3742738.4275600
W50A4G10007	Maxey Range Complex	West Area	20130904	MD	Frag	6	251934.00503800	3742737.5455100
W50A4G10008	Maxey Range Complex	West Area	20130904	MD	Frag	3	251933.33595500	3742738.4894500
W50A4G10009	Maxey Range Complex	West Area	20130904	MD	Frag	4	251936.87041900	3742736.9031200
W50A4G10010	Maxey Range Complex	West Area	20130904	MD	Frag	3	251935.33997300	3742740.6302600
W50A4G10011	Maxey Range Complex	West Area	20130904	MD	Frag	4	251933.73373200	3742733.4871600
W50A4G10012	Maxey Range Complex	West Area	20130904	MD	Frag	12	251933.20059400	3742736.3902900
W50A4G10013	Maxey Range Complex	West Area	20130904	MD	Frag	5	251923.51017300	3742733.0021100
W50A4G10014	Maxey Range Complex	West Area	20130904	MD	Frag	5	251936.49033500	3742731.1560200
W50A4G10015	Maxey Range Complex	West Area	20130904	MD	Frag	5	251924.12750400	3742741.9027000
W50A4G10016	Maxey Range Complex	West Area	20130904	MD	Frag	10	251937.53070200	3742736.1194600
W50A4G10017	Maxey Range Complex	West Area	20130904	MD	Frag	6	251933.63500800	3742732.0103800
W50A4G10018	Maxey Range Complex	West Area	20130904	MD	Frag	6	251930.88545500	3742741.4787900
W50A4G10019	Maxey Range Complex	West Area	20130904	MD	Frag	6	251926.51737100	3742741.1994700
W50A4G10020	Maxey Range Complex	West Area	20130904	MD	Frag	6	251935.24241200	3742734.2881200
W50A4G10021	Maxey Range Complex	West Area	20130904	MD	Frag	6	251932.16761200	3742731.8411200
W50A4G10022	Maxey Range Complex	West Area	20130904	MD	Frag	6	251930.17514200	3742734.6720200
W50A4G10023	Maxey Range Complex	West Area	20130904	MD	Frag	4	251925.56017000	3742731.0534600
W50A4G10024	Maxey Range Complex	West Area	20130904	MD	Frag	6	251929.99119900	3742741.3391100
W50A4G10025	Maxey Range Complex	West Area	20130904	MD	Frag	6	251932.12392900	3742731.1911700
W50A4G10026	Maxey Range Complex	West Area	20130904	MD	Frag	6	251935.32780000	3742735.5722900
W50A4G10027	Maxey Range Complex	West Area	20130904	MD	Frag	3	251937.73384300	3742738.9709600
W50A4G10028	Maxey Range Complex	West Area	20130904	MD	Frag	3	251933.58563200	3742731.2717800
W50A4G10029	Maxey Range Complex	West Area	20130904	MD	Frag	10	251928.13712400	3742736.7936400
W50A4G10030	Maxey Range Complex	West Area	20130904	MD	Frag	4	251928.02120000	3742735.0959700
W50A4G10031	Maxey Range Complex	West Area	20130904	MD	Frag	6	251930.36522900	3742737.4778800
W50A4G10032	Maxey Range Complex	West Area	20130904	MD	Frag	6	251924.79210400	3742741.0085300
W50A4G10033	Maxey Range Complex	West Area	20130904	MD	Frag	6	251924.07437800	3742741.1367400
W50A4G10034	Maxey Range Complex	West Area	20130904	MD	Frag	4	251932.23066100	3742736.9333500
W50A4G20001	Maxey Range Complex	West Area	20130904	S	Seed	4	250873.03774700	3742719.7093700
W50A4G20002	Maxey Range Complex	West Area	20130904	MD	Frag	4	250878.75954200	3742720.1040500
W53A4G10001	Maxey Range Complex	West Area	20130912	S	Seed	1	253796.50176500	3742434.5499300
W53A4G10002	Maxey Range Complex	West Area	20130912	CD	Nail	5	253807.66360700	3742427.8279800
W53A4G10003	Maxey Range Complex	West Area	20130912	MD	Frag	5	253800.43087600	3742427.5812700
W53A4G10004	Maxey Range Complex	West Area	20130912	CD	Nail	4	253805.30218700	3742429.5928000
W54A3G10001	Maxey Range Complex	West Area	20130902	S	Seed	1	252590.83739500	3742332.4033500
W54A3G10002	Maxey Range Complex	West Area	20130902	CD	Barb Wire	1	252590.33026400	3742322.1444600
W54A3G10003	Maxey Range Complex	West Area	20130902	CD	Barb Wire	1	252590.99590200	3742321.6972500
W54A3G10004	Maxey Range Complex	West Area	20130902	CD	Barb Wire	1	252591.03085000	3742322.8072000
W54A3G10005	Maxey Range Complex	West Area	20130902	CD	Barb Wire	3	252587.84950800	3742333.7140800
W54A3G10006	Maxey Range Complex	West Area	20130902	CD	Barb Wire	1	252585.26419600	3742331.7011500
W54A3G10007	Maxey Range Complex	West Area	20130902	MD	Frag	6	252585.96650900	3742326.3937800
W54A3G10008	Maxey Range Complex	West Area	20130902	MD	Frag	6	252585.22777100	3742325.5377000
W54A3G10009	Maxey Range Complex	West Area	20130902	MD	Frag	12	252586.01199700	3742326.8664600
W54A3G10010	Maxey Range Complex	West Area	20130902	MD	Frag	6	252593.03056500	3742331.8735300
W54A3G10011	Maxey Range Complex	West Area	20130902	CD	Barb Wire	1	252585.82047500	3742331.2173700
W54A3G10012	Maxey Range Complex	West Area	20130902	MD	Frag	1	252596.12183800	3742331.4908200
W54A3G10013	Maxey Range Complex	West Area	20130902	CD	Barb Wire	1	252589.15473900	3742325.4732300
W54A3G10014	Maxey Range Complex	West Area	20130902	CD	Barb Wire	2	252585.50875300	3742333.8753100
W54A3G10015	Maxey Range Complex	West Area	20130902	CD	Barb Wire	1	252588.52989500	3742325.9357300
W54A3G10016	Maxey Range Complex	West Area	20130902	CD	Barb Wire	3	252586.11201000	3742327.9057300
W54A3G10017	Maxey Range Complex	West Area	20130902	CD	Barb Wire	1	252588.55972300	3742326.4031700
W54A3G10018	Maxey Range Complex	West Area	20130902	CD	Barb Wire	1	252584.37752900	3742323.8184900
W54A3G10019	Maxey Range Complex	West Area	20130902	MD	Frag	4	252594.30559900	3742332.9839300

W54A3G10020	Maxey Range Complex	West Area	20130902	CD	Barb Wire	3	252585.03190300	3742335.9231500
W54A3G10021	Maxey Range Complex	West Area	20130902	CD	Barb Wire	3	252586.54913400	3742325.6416500
W54A3G10022	Maxey Range Complex	West Area	20130902	CD	Barb Wire	3	252582.67315700	3742321.0135800
W54A3G10023	Maxey Range Complex	West Area	20130902	MD	Frag	3	252592.94380800	3742321.6309200
W54A3G10024	Maxey Range Complex	West Area	20130902	CD	Barb Wire	2	252587.24162100	3742326.1164100
W54A3G10025	Maxey Range Complex	West Area	20130902	CD	Barb Wire	2	252586.82314600	3742328.7512300
W54A3G10026	Maxey Range Complex	West Area	20130902	CD	Barb Wire	1	252589.11316600	3742324.7271200
W54A3G10027	Maxey Range Complex	West Area	20130902	CD	Barb Wire	2	252596.16046600	3742330.3154700
W54A3G20001	Maxey Range Complex	West Area	20130903	CD	Barb wire	0	251706.04077500	3742338.2432500
W54A3G20002	Maxey Range Complex	West Area	20130903	CD	Barb wire	0	251700.76534200	3742326.7852100
W54A3G20003	Maxey Range Complex	West Area	20130903	CD	Barb wire	1	251706.03328100	3742339.4736600
W54A3G20004	Maxey Range Complex	West Area	20130903	CD	Barb wire	0	251704.26336900	3742334.5295300
W54A3G20005	Maxey Range Complex	West Area	20130903	CD	Barb wire	0	251706.84968300	3742338.8622100
W54A3G20006	Maxey Range Complex	West Area	20130903	CD	Barb wire	0	251707.55683800	3742338.0722100
W54A3G20007	Maxey Range Complex	West Area	20130903	CD	Barb wire	0	251705.94201900	3742336.8419800
W54A3G20008	Maxey Range Complex	West Area	20130903	CD	Barb wire	0	251706.80075800	3742337.3679200
W54A3G20009	Maxey Range Complex	West Area	20130903	CD	Barb wire	1	251705.09386000	3742335.5865100
W54A3G20010	Maxey Range Complex	West Area	20130903	S	Seed	3	251698.65487700	3742328.9682500
W54A3G20011	Maxey Range Complex	West Area	20130903	CD	Barb wire	2	251705.33775500	3742330.2015100
W54A3G20012	Maxey Range Complex	West Area	20130903	CD	Barb wire	2	251704.60061500	3742328.4189200
W54A3G20013	Maxey Range Complex	West Area	20130903	CD	Barb wire	4	251705.92221500	3742334.7343000
W54A3G20014	Maxey Range Complex	West Area	20130903	CD	Barb wire	4	251703.02684100	3742327.2170800
W54A3G20015	Maxey Range Complex	West Area	20130903	CD	Barb wire	2	251706.25299000	3742330.5905200
W54A3G20016	Maxey Range Complex	West Area	20130903	CD	Barb wire	2	251707.27800400	3742334.2938500
W54A3G20017	Maxey Range Complex	West Area	20130903	CD	Barb wire	1	251701.96018000	3742331.6884600
W54A3G20018	Maxey Range Complex	West Area	20130903	CD	Barb wire	3	251704.81855700	3742331.5859300
W54A3G20019	Maxey Range Complex	West Area	20130903	CD	Barb wire	2	251700.06982900	3742327.6102000
W54A3G20020	Maxey Range Complex	West Area	20130903	CD	Barb wire	2	251701.76422400	3742330.8805400
W54A3G20021	Maxey Range Complex	West Area	20130903	CD	Barb wire	3	251702.96397600	3742326.2572600
W54A3G20022	Maxey Range Complex	West Area	20130903	CD	Barb wire	2	251708.19789800	3742334.8753700
W54A3G20023	Maxey Range Complex	West Area	20130903	CD	Barb wire	2	251710.84561500	3742339.5917100
W54A3G20024	Maxey Range Complex	West Area	20130903	CD	Barb wire	2	251708.38983900	3742338.9824700
W54A3G20025	Maxey Range Complex	West Area	20130903	CD	Barb wire	2	251698.56240500	3742327.3035200
W54A3G20026	Maxey Range Complex	West Area	20130903	MD	Frag	4	251699.20403200	3742338.8544900
W54A3G20027	Maxey Range Complex	West Area	20130903	CD	Barb wire	2	251700.88075500	3742328.6922200
W54A3G20028	Maxey Range Complex	West Area	20130903	CD	Barb wire	2	251700.63743300	3742337.2531000
W54A3G20029	Maxey Range Complex	West Area	20130903	CD	Barb wire	1	251704.54893300	3742338.7817600
W54A3G20030	Maxey Range Complex	West Area	20130903	CD	Barb wire	4	251701.42894300	3742337.7501200
W54A3G20031	Maxey Range Complex	West Area	20130903	MD	Frag	3	251709.77960700	3742327.6862400
W54A3G20032	Maxey Range Complex	West Area	20130903	MD	Frag	6	251698.19461800	3742334.2927100
W54A3G20033	Maxey Range Complex	West Area	20130903	MD	Frag	1	251711.09945500	3742334.6541900
W56A2G10001	Maxey Range Complex	West Area	20130903	CD	Barb Wire	0	251412.20425500	3742129.0778200
W56A2G10002	Maxey Range Complex	West Area	20130903	CD	Barb Wire	0	251413.75530300	3742129.0989000
W56A2G10003	Maxey Range Complex	West Area	20130903	S	Seed	3	251403.42214000	3742138.7021800
W56A2G10004	Maxey Range Complex	West Area	20130903	CD	Barb Wire	0	251418.39410900	3742128.8062600
W56A2G10005	Maxey Range Complex	West Area	20130903	CD	Barb Wire	1	251415.53230800	3742127.1313000
W56A2G10006	Maxey Range Complex	West Area	20130903	CD	Barb Wire	1	251413.70746900	3742128.0233600
W56A2G10007	Maxey Range Complex	West Area	20130903	CD	Barb Wire	3	251394.38766300	3742126.8783400
W56A2G10008	Maxey Range Complex	West Area	20130903	CD	Barb Wire	0	251420.74658000	3742129.5450600
W56A2G10009	Maxey Range Complex	West Area	20130903	CD	Barb Wire	0	251414.56299200	3742124.6883500
W56A2G10010	Maxey Range Complex	West Area	20130903	CD	Barb Wire	3	251421.50966300	3742129.2859200
W56A2G10011	Maxey Range Complex	West Area	20130903	CD	Barb Wire	3	251409.84560300	3742144.3807000
W56A2G10012	Maxey Range Complex	West Area	20130903	CD	Barb Wire	0	251410.59288000	3742144.1776800
W56A2G10013	Maxey Range Complex	West Area	20130903	CD	Barb Wire	0	251422.42883100	3742127.5668500
W56A2G10014	Maxey Range Complex	West Area	20130903	CD	Barb Wire	6	251407.53307600	3742128.6526300
W56A2G10015	Maxey Range Complex	West Area	20130903	CD	Barb Wire	1	251416.85368400	3742129.0518700
W56A2G10016	Maxey Range Complex	West Area	20130903	MD	Frag	8	251405.97690300	3742128.5400500
W56A2G10017	Maxey Range Complex	West Area	20130903	MD	Frag	6	251408.57156100	3742129.7209000
W56A2G10018	Maxey Range Complex	West Area	20130903	MD	Frag	6	251413.76257900	3742132.2785500
W56A2G10019	Maxey Range Complex	West Area	20130903	CD	Barb Wire	3	251409.90245500	3742145.5541400
W56A2G10020	Maxey Range Complex	West Area	20130903	CD	Barb Wire	4	251406.72074200	3742127.9169700
W56A2G10021	Maxey Range Complex	West Area	20130903	CD	Barb Wire	0	251392.03297800	3742128.6250600
W56A2G10022	Maxey Range Complex	West Area	20130903	CD	Barb Wire	4	251396.96137800	3742146.3558100
W56A2G10023	Maxey Range Complex	West Area	20130903	CD	Barb Wire	0	251409.11676000	3742145.1115100
W56A2G10024	Maxey Range Complex	West Area	20130903	CD	Barb Wire	6	251398.07831100	3742146.0767100
W56A2G10025	Maxey Range Complex	West Area	20130903	MD	Frag	6	251401.98575700	3742140.5311300
W56A2G10026	Maxey Range Complex	West Area	20130903	MD	Frag	3	251414.79693000	3742135.1960200
W59A1G10001	Maxey Range Complex	West Area	20130902	CD	Barb Wire	6	252690.96181300	3741780.5889500
W59A1G10002	Maxey Range Complex	West Area	20130902	S	SEED	2	252694.51803800	3741778.3612700
W59A1G10003	Maxey Range Complex	West Area	20130902	CD	Barb Wire	4	252691.47994400	3741781.7273100
W59A1G10004	Maxey Range Complex	West Area	20130902	CD	Barb Wire	2	252686.32775000	3741788.5855800
W59A1G10005	Maxey Range Complex	West Area	20130902	MD	Frag	1	252689.32762400	3741776.5987900
W59A1G10006	Maxey Range Complex	West Area	20130902	MD	Frag	6	252685.19779900	3741790.8587600
W59A1G10007	Maxey Range Complex	West Area	20130902	MD	Frag	6	252688.55318100	3741779.4235000
W59A1G10008	Maxey Range Complex	West Area	20130902	MD	Frag	6	252698.89627400	3741782.5856700

W59A1G10009	Maxey Range Complex	West Area	20130902	MD	Frag	6	252684.82941400	3741777.5976900
W59A1G10010	Maxey Range Complex	West Area	20130902	CD	Barb Wire	0	252695.19905000	3741780.3703700
W59A1G10011	Maxey Range Complex	West Area	20130902	MD	Frag	4	252684.53662100	3741785.3264900
W59A1G10012	Maxey Range Complex	West Area	20130902	MD	Frag	3	252684.10350200	3741776.5402700
W59A1G10013	Maxey Range Complex	West Area	20130902	MD	Frag	2	252693.92261900	3741788.4205300
W59A1G10014	Maxey Range Complex	West Area	20130902	CD	Barb Wire	1	252694.43569400	3741781.2339800
W59A1G10015	Maxey Range Complex	West Area	20130902	MD	Frag	1	252685.57591700	3741776.8219700
W59A1G10016	Maxey Range Complex	West Area	20130902	CD	nail	3	252694.19789200	3741789.5745400
W59A1G10017	Maxey Range Complex	West Area	20130902	MD	Frag	4	252686.32552500	3741780.2576500
W59A1G20001	Maxey Range Complex	West Area	20130902	MD	Frag	4	252067.18702100	3741801.2275700
W59A1G20002	Maxey Range Complex	West Area	20130902	S	Seed	3	252058.45469600	3741804.8995200
W59A1G20003	Maxey Range Complex	West Area	20130902	MD	Frag	4	252059.21930500	3741804.4009900
W59A1G20004	Maxey Range Complex	West Area	20130902	MD	Frag	6	252055.26667500	3741798.6250000
W59A1G20005	Maxey Range Complex	West Area	20130902	MD	Frag	3	252066.86086300	3741795.0728300
W59A1G20006	Maxey Range Complex	West Area	20130902	MD	Frag	4	252066.44959600	3741800.6549700
W59A1G20007	Maxey Range Complex	West Area	20130902	MD	Frag	4	252059.37786800	3741800.1790200
W59A1G20008	Maxey Range Complex	West Area	20130902	MD	Frag	3	252062.91893000	3741803.3473000
W59A1G20009	Maxey Range Complex	West Area	20130902	MD	Frag	7	252064.40484500	3741804.5582200
W59A1G30001	Maxey Range Complex	West Area	20130902	MD	Frag	12	251399.92954400	3741803.6199600
W59A1G30002	Maxey Range Complex	West Area	20130902	S	Seed	6	251389.30928100	3741801.8997700
W59A1G30003	Maxey Range Complex	West Area	20130902	MD	Frag	4	251390.79630800	3741803.8079900
W59A1G30004	Maxey Range Complex	West Area	20130902	MD	Frag	3	251397.12759800	3741799.4847100
W59A1G30005	Maxey Range Complex	West Area	20130902	MD	Frag	3	251390.10677600	3741794.4509000
W59A1G30006	Maxey Range Complex	West Area	20130902	MD	Frag	6	251385.49295900	3741803.5632200
W59A1G30007	Maxey Range Complex	West Area	20130902	MD	Frag	6	251397.99005200	3741800.4253300
W59A1G30008	Maxey Range Complex	West Area	20130902	MD	Frag	4	251396.40787900	3741800.9562500
W59A1G30009	Maxey Range Complex	West Area	20130902	MD	Frag	3	251390.87636300	3741795.2169500
W59A1G30010	Maxey Range Complex	West Area	20130902	MD	Frag	4	251398.83619600	3741801.1613100
W59A1G30011	Maxey Range Complex	West Area	20130902	MD	Frag	6	251385.32223800	3741798.8547700
W59A1G30012	Maxey Range Complex	West Area	20130902	MD	Frag	6	251396.47940700	3741800.2855800
W59A1G30013	Maxey Range Complex	West Area	20130902	MD	Frag	6	251394.76006800	3741798.1210100
W59A1G30014	Maxey Range Complex	West Area	20130902	MD	Frag	3	251385.19657500	3741795.3890400
W59A1G30015	Maxey Range Complex	West Area	20130902	MD	Frag	6	251397.17702600	3741798.6815900
W59A1G30016	Maxey Range Complex	West Area	20130902	MD	Frag	6	251398.36545900	3741803.3673200
W59A1G30017	Maxey Range Complex	West Area	20130902	MD	Frag	6	251386.83083400	3741799.9703000
W59A1G30018	Maxey Range Complex	West Area	20130902	MD	Frag	6	251390.40289600	3741798.4693000
W59A1G30019	Maxey Range Complex	West Area	20130902	MD	Frag	4	251397.38123200	3741801.5604800
W5A1G10001	Maxey Range Complex	West Area	20130816	MD	Frag	4	253643.31619200	3747263.1097500
W5A1G20001	Maxey Range Complex	West Area	20130814	MD	Frag	3	252745.24253200	3747260.5308500
W5A1G20002	Maxey Range Complex	West Area	20130814	MD	Frag	4	252744.32396000	3747255.6216900
W5A1G20003	Maxey Range Complex	West Area	20130814	MD	Frag	4	252744.96410000	3747256.0802300
W5A1G20004	Maxey Range Complex	West Area	20130814	MD	Frag	3	252743.87298000	3747253.0679700
W5A1G20005	Maxey Range Complex	West Area	20130814	MD	Frag	1	252741.49725800	3747262.1011000
W5A1G20006	Maxey Range Complex	West Area	20130814	MD	Frag	4	252740.02354000	3747263.4938600
W5A1G20007	Maxey Range Complex	West Area	20130814	MD	Frag	4	252753.11180100	3747252.3895500
W5A1G20008	Maxey Range Complex	West Area	20130814	MD	Frag	2	252742.28744000	3747262.9792000
W5A1G20009	Maxey Range Complex	West Area	20130814	MD	Frag	2	252751.89728800	3747260.0919200
W5A1G20010	Maxey Range Complex	West Area	20130814	MD	Frag	4	252743.87500000	3747261.5313300
W5A1G20011	Maxey Range Complex	West Area	20130814	CD	Barb Wire	1	252744.57933000	3747252.1213000
W5A1G20012	Maxey Range Complex	West Area	20130814	MD	Frag	4	252743.17336000	3747253.7036200
W7A1G10001	Maxey Range Complex	West Area	20130826	CD	Barb Wire	1	254502.82336500	3747064.7430400
W7A1G10002	Maxey Range Complex	West Area	20130826	CD	Barb Wire	1	254507.13369900	3747072.1453300
W7A1G10003	Maxey Range Complex	West Area	20130826	CD	Barb Wire	2	254503.45371600	3747072.8972600
W7A1G10004	Maxey Range Complex	West Area	20130826	CD	Barb Wire	1	254513.72223800	3747064.9902800
W7A1G10005	Maxey Range Complex	West Area	20130826	CD	Barb Wire	2	254509.79596700	3747068.6794100
W7A1G10006	Maxey Range Complex	West Area	20130826	CD	Barb Wire	1	254507.28529300	3747070.7737200
W7A1G10007	Maxey Range Complex	West Area	20130826	CD	Barb Wire	1	254513.66328600	3747071.2386200
W7A1G10008	Maxey Range Complex	West Area	20130826	CD	Barb Wire	1	254509.57864200	3747069.2706900
W7A1G10009	Maxey Range Complex	West Area	20130826	S	Seed	1	254505.76034500	3747065.3380900
W7A1G10010	Maxey Range Complex	West Area	20130826	CD	Barb Wire	1	254513.64408700	3747065.8443500
W7A1G10011	Maxey Range Complex	West Area	20130826	CD	Barb Wire	2	254512.73488100	3747066.3012600
W7A1G10012	Maxey Range Complex	West Area	20130826	CD	Barb Wire	1	254507.15368300	3747070.1462800
W7A1G10013	Maxey Range Complex	West Area	20130826	CD	Barb Wire	1	254513.22727400	3747070.3994900
W7A1G10014	Maxey Range Complex	West Area	20130826	CD	Barb Wire	1	254505.08693700	3747062.7114800
W7A1G10015	Maxey Range Complex	West Area	20130826	CD	Barb Wire	2	254505.06497400	3747072.1174200
W7A1G10016	Maxey Range Complex	West Area	20130826	CD	Barb Wire	1	254510.29411000	3747069.8082500
W7A1G10017	Maxey Range Complex	West Area	20130826	CD	Barb Wire	3	254515.92436500	3747060.1561400
W7A1G10018	Maxey Range Complex	West Area	20130826	CD	Barb Wire	1	254502.88149000	3747070.6857900
W7A1G10019	Maxey Range Complex	West Area	20130826	CD	Barb Wire	2	254505.71986500	3747070.1919500
W7A1G10020	Maxey Range Complex	West Area	20130826	CD	Barb Wire	1	254510.59560100	3747064.9793600
W7A1G10021	Maxey Range Complex	West Area	20130826	CD	Barb Wire	2	254509.65354900	3747067.9133000
W7A1G10022	Maxey Range Complex	West Area	20130826	CD	Barb Wire	2	254504.35192300	3747069.7836200
W7A1G10023	Maxey Range Complex	West Area	20130826	CD	Barb Wire	1	254511.23052800	3747067.0731900
W7A1G10024	Maxey Range Complex	West Area	20130826	CD	Barb Wire	1	254513.30542800	3747069.5453800
W7A1G10025	Maxey Range Complex	West Area	20130826	CD	Barb Wire	1	254517.04182100	3747070.3932200

W7A1G10026	Maxey Range Complex	West Area	20130826	CD	Barb Wire	1	254512.07470100	3747068.1551100
E22A3T0001	Maxey Range Complex	East Area	20130614	MEC	37 mm APHE	0	263502.00000000	3747140.0000000
E11A3G10028	Maxey Range Complex	East Area	20130919	CD	Barb Wire	2	260886.66325900	3748303.8762700
E42A3G10019	Maxey Range Complex	East Area	20130916	CD	Barb Wire	1	264809.59220700	3745412.3676300
E42A3G10007	Maxey Range Complex	East Area	20130916	CD	Barb Wire	2	264801.10022400	3745413.9411500
E55A1G10023	Maxey Range Complex	East Area	20130918	CD	Barb Wire	0	262990.32800600	3744419.1340000
E44A8G10029	Maxey Range Complex	East Area	20130909	CD	Barb Wire	4	260209.83693000	3745315.8222900
E14A1G10016	Maxey Range Complex	East Area	20130919	CD	Trash Pit	4	261869.27292700	3748012.1801700
E42A3G10014	Maxey Range Complex	East Area	20130916	CD	Barb Wire	2	264813.93752300	3745420.1870800
E43A2G10048	Maxey Range Complex	East Area	20190917	CD	Barb Wire	2	264803.00469800	3745411.1424600
E52A3G10019	Maxey Range Complex	East Area	20130918	CD	Barb Wire	0	261386.24318200	3744605.2108200
E44A8G10031	Maxey Range Complex	East Area	20130909	CD	Barb Wire	3	260204.31102400	3745317.6583300
E52A3G10027	Maxey Range Complex	East Area	20130918	CD	Wire	1	261395.90239900	3744602.8263500
E55A1G10027	Maxey Range Complex	East Area	20130918	CD	Barb Wire	1	263001.85663100	3744431.6119800
E52A3G10043	Maxey Range Complex	East Area	20130918	CD	Barb Wire	1	261393.33128500	3744601.9379100
E14A1G10048	Maxey Range Complex	East Area	20130919	MD	30 cal bullet	3	261874.76331000	3748009.0431100
E43A4G10030	Maxey Range Complex	East Area	20130917	CD	Metal File & Wire	3	261924.21995000	3745414.1591800
E4BA2G10024	Maxey Range Complex	East Area	20130920	CD	Barb Wire	2	262618.43207500	3748869.7045300
E5BA1G10093	Maxey Range Complex	East Area	20130920	CD	Nails	3	262291.54515600	3748778.9916300
E42A3G10042	Maxey Range Complex	East Area	20130916	CD	Barb Wire	2	264804.00618700	3745418.0412500
E43A2G10026	Maxey Range Complex	East Area	20190917	CD	Barb Wire	3	264802.40013500	3745411.8734200
E4BA2G10007	Maxey Range Complex	East Area	20130920	CD	Barb Wire	2	262630.74794700	3748864.9542100
E55A1G10004	Maxey Range Complex	East Area	20130918	CD	Barb Wire	0	262990.86546700	3744421.0730500
E14A1G10002	Maxey Range Complex	East Area	20130919	S	Seed	1	261876.40438800	3748012.9944800
E4BA2G10006	Maxey Range Complex	East Area	20130920	CD	Trash Pit	2	262629.82166400	3748864.5739400
E4BA2G10004	Maxey Range Complex	East Area	20130920	CD	Trash Pit	2	262618.56525900	3748871.3296000
E11A3G10003	Maxey Range Complex	East Area	20130919	CD	Barb Wire	1	260886.57644900	3748305.3167500
E11A3G10005	Maxey Range Complex	East Area	20130919	CD	Barb Wire	0	260884.40451400	3748302.9355200
E52A3G10023	Maxey Range Complex	East Area	20130918	CD	Wire	1	261392.58212800	3744604.0177100
E43A4G10054	Maxey Range Complex	East Area	20130917	CD	Scrap Metal	2	261933.12318700	3745410.7388500
E62A1G10035	Maxey Range Complex	East Area	20130918	CD	Barb Wire	1	263162.56868700	3743859.0847200
E52A3G10029	Maxey Range Complex	East Area	20130918	CD	Wire	2	261387.33035100	3744603.3576800
E43A4G10031	Maxey Range Complex	East Area	20130917	CD	Srcap Metal	2	261930.53905100	3745406.4748800
E5BA1G10024	Maxey Range Complex	East Area	20130920	CD	Nail Pit	3	262294.56069400	3748775.2084600
E8A1G10005	Maxey Range Complex	East Area	20130920	CD	Barb wire	0	264885.79116700	3748540.6927800
E62A1G10002	Maxey Range Complex	East Area	20130918	CD	Barb Wire	6	263149.35041200	3743857.2671300
E8A1G10009	Maxey Range Complex	East Area	20130920	CD	Barb wire	1	264882.58122900	3748536.8377200
E24A1G10011	Maxey Range Complex	East Area	20130917	CD	Wire	3	264338.99857000	3747038.5016600
E42A3G10017	Maxey Range Complex	East Area	20130916	CD	Barb Wire	4	264808.73690900	3745420.7649700
E42A3G10011	Maxey Range Complex	East Area	20130916	CD	Barb Wire	1	264804.46673100	3745412.4399900
E4BA2G10026	Maxey Range Complex	East Area	20130920	CD	Barb Wire	2	262623.61496800	3748869.1857300
E44A8G10012	Maxey Range Complex	East Area	20130909	CD	Barb Wire	2	260210.38633400	3745305.1920600
E5BA1G10040	Maxey Range Complex	East Area	20130920	CD	Wire	2	262292.28199200	3748782.6880800
E42A3G10029	Maxey Range Complex	East Area	20130916	CD	Nails	2	264802.18819100	3745425.2378300
E4BA2G10027	Maxey Range Complex	East Area	20130920	CD	Barb Wire	3	262628.19572000	3748860.9999100
E43A2G10014	Maxey Range Complex	East Area	20190917	CD	Nails	2	264803.95765000	3745426.2950400
E14A1G10042	Maxey Range Complex	East Area	20130919	CD	Barb Wire	3	261865.56362000	3748012.4374200
E62A1G10001	Maxey Range Complex	East Area	20130918	CD	Barb Wire	3	263151.76707800	3743854.5307900
E52A3G10024	Maxey Range Complex	East Area	20130918	CD	Barb Wire	1	261399.10439600	3744609.8337200
E42A3G10021	Maxey Range Complex	East Area	20130916	CD	Nails	2	264809.23464500	3745420.3338800
E43A4G10007	Maxey Range Complex	East Area	20130917	CD	Trash Pit	3	261938.32209800	3745411.3301300
E62A1G10029	Maxey Range Complex	East Area	20130918	CD	Barb Wire	3	263157.44880100	3743857.3588800
E62A1G10033	Maxey Range Complex	East Area	20130918	CD	Barb Wire	1	263156.04447700	3743855.3119500
E4BA2G10013	Maxey Range Complex	East Area	20130920	CD	Trash Pit	3	262631.61044800	3748866.4409100
E22A1G10001	Maxey Range Complex	East Area	20130917	S	Seed	3	265558.76212900	3747131.7870900
E14A1G10009	Maxey Range Complex	East Area	20130919	CD	Nail Pit	3	261870.84174200	3748015.5993900
E43A2G10046	Maxey Range Complex	East Area	20190917	CD	Nails	3	264801.37312900	3745418.4617900
E14A1G10036	Maxey Range Complex	East Area	20130919	CD	Trash Pit	4	261867.87987000	3748012.8890400
E14A1G10041	Maxey Range Complex	East Area	20130919	CD	Trash Pit	3	261871.75686000	3748013.3351000
E62A1G10022	Maxey Range Complex	East Area	20130918	CD	Barb Wire	0	263158.03197500	3743862.7752500
E5BA1G10086	Maxey Range Complex	East Area	20130920	CD	Trash Pit	2	262304.21558200	3748784.4682300
E14A1G10032	Maxey Range Complex	East Area	20130919	CD	Trash Pit	3	261867.25434700	3748013.7817900
E42A1G10010	Maxey Range Complex	East Area	20130917	CD	Barb Wire	2	254730.35720100	3743527.3620600
E52A3G10037	Maxey Range Complex	East Area	20130918	CD	Wire	1	261393.97282500	3744608.9137700
E62A1G10025	Maxey Range Complex	East Area	20130918	CD	Barb Wire	0	263157.32642100	3743861.4480900
E52A3G10002	Maxey Range Complex	East Area	20130918	CD	Barb Wire	1	261388.91585500	3744609.7564200
E43A2G10020	Maxey Range Complex	East Area	20190917	CD	Nails	1	264804.69364800	3745412.6693000
E4BA2G10038	Maxey Range Complex	East Area	20130920	CD	Trash Pit	4	262628.97282300	3748861.3695600
E52A3G10009	Maxey Range Complex	East Area	20130918	CD	Barb Wire	0	261396.19445300	3744597.0180500
E42A3G10018	Maxey Range Complex	East Area	20130916	CD	Barb Wire	2	264807.04215200	3745419.7015000
E4BA2G10042	Maxey Range Complex	East Area	20130920	CD	Barb Wire	3	262622.80793700	3748859.1316600
E14A1G10027	Maxey Range Complex	East Area	20130919	CD	Horse Shoe	3	261876.80995700	3748001.4302800
E11A3G10022	Maxey Range Complex	East Area	20130919	CD	Chain	4	260881.01310300	3748312.6562600
E4BA2G10019	Maxey Range Complex	East Area	20130920	CD	Barb Wire	3	262625.67671300	3748857.5398700
E42A1G10009	Maxey Range Complex	East Area	20130917	MD	30 Cal Bullet	1	254727.62492300	3743524.6233300

E42A3G10041	Maxey Range Complex	East Area	20130916	CD	Nails	2	264811.13904100	3745421.6968700
E43A2G10001	Maxey Range Complex	East Area	20190917	CD	Metal Pipe	1	264807.45402800	3745411.6441000
E4BA2G10008	Maxey Range Complex	East Area	20130920	CD	Trash Pit	2	262622.93487700	3748870.0093700
E52A3G10025	Maxey Range Complex	East Area	20130918	CD	Barb Wire	0	261391.20856900	3744604.4150900
E43A2G10017	Maxey Range Complex	East Area	20190917	CD	Nails	2	264806.63601500	3745421.7015400
E40A2G10002	Maxey Range Complex	East Area	20130916	CD	Nail	2	263912.34975300	3745667.4215000
E14A1G10022	Maxey Range Complex	East Area	20130919	CD	Trash Pit	3	261874.90829600	3748015.3826000
E55A1G10026	Maxey Range Complex	East Area	20130918	CD	Barb Wire	0	262996.40110900	3744432.7854900
E62A1G10018	Maxey Range Complex	East Area	20130918	CD	Barb Wire	0	263153.66302100	3743860.0667100
E8A1G10010	Maxey Range Complex	East Area	20130920	CD	Barb wire	2	264888.18916200	3748535.9325400
E11A3G10006	Maxey Range Complex	East Area	20130919	CD	Barb Wire	0	260884.94775400	3748306.9801300
E55A1G10021	Maxey Range Complex	East Area	20130918	CD	Barb Wire	1	262990.48644300	3744429.7818300
E62A1G10014	Maxey Range Complex	East Area	20130918	CD	Barb Wire	0	263156.63167900	3743859.9181100
E43A2G10010	Maxey Range Complex	East Area	20190917	CD, S	Nails	3	264802.53622000	3745415.1002900
E43A2G10003	Maxey Range Complex	East Area	20190917	CD	Metal sign & Nail Pit	5	264811.32404400	3745415.3056600
E42A1G10003	Maxey Range Complex	East Area	20130917	CD	Barb Wire	2	254728.79769200	3743527.1114700
E43A2G10027	Maxey Range Complex	East Area	20190917	CD	Barb Wire	1	264800.25245600	3745410.8321500
E44A8G10010	Maxey Range Complex	East Area	20130909	CD	Barb Wire	3	260199.44982800	3745309.6560400
E43A2G10039	Maxey Range Complex	East Area	20190917	CD	Nails	2	264808.22102000	3745421.3884600
E52A3G10031	Maxey Range Complex	East Area	20130918	CD	Barb Wire	1	261395.68916700	3744597.7855200
E4BA2G10035	Maxey Range Complex	East Area	20130920	CD	Trash Pit	4	262625.01215200	3748858.6025600
E8A1G10017	Maxey Range Complex	East Area	20130920	CD	Barb wire	1	264884.35098900	3748540.7268300
E11A3G10020	Maxey Range Complex	East Area	20130919	CD	Barb Wire	2	260887.75330900	3748310.9137200
E44A8G10013	Maxey Range Complex	East Area	20130909	CD	Barb Wire	6	260199.01797700	3745312.7715100
E5BA1G10008	Maxey Range Complex	East Area	20130920	CD	Nail Pit	2	262302.71675600	3748784.7029600
E52A3G10011	Maxey Range Complex	East Area	20130918	S	Seed	0	261386.76783600	3744606.0813200
E4BA2G10032	Maxey Range Complex	East Area	20130920	CD	Barb Wire	3	262619.26232500	3748868.9027000
E44A8G10022	Maxey Range Complex	East Area	20130909	CD	Barb Wire	3	260212.12188700	3745309.1410500
E44A8G10032	Maxey Range Complex	East Area	20130909	CD	Scrap Metal	8	260200.75687400	3745309.4368900
E4BA2G10009	Maxey Range Complex	East Area	20130920	CD	Trash Pit	2	262622.75291600	3748867.7492700
E4BA2G10023	Maxey Range Complex	East Area	20130920	CD	Barb Wire	1	262617.61297600	3748868.8210200
E11A3G10025	Maxey Range Complex	East Area	20130919	CD	Barb Wire	2	260879.39033900	3748311.9041400
E14A1G10037	Maxey Range Complex	East Area	20130919	CD	Barb Wire	3	261867.19807100	3748000.5662500
E55A1G10003	Maxey Range Complex	East Area	20130918	CD	Barb Wire	0	263004.74289200	3744433.4195400
E14A1G10008	Maxey Range Complex	East Area	20130919	CD	Nail Pit	4	261873.34161600	3748015.2768700
E4BA2G10011	Maxey Range Complex	East Area	20130920	S	Seed	1	262619.52672600	3748862.9806800
E52A3G10006	Maxey Range Complex	East Area	20130918	CD	Barb Wire	0	261398.15448100	3744608.6222200
E21A3G10002	Maxey Range Complex	East Area	20130917	MD	37mm AP	3	263480.24776300	3747230.1332300
E44A8G10037	Maxey Range Complex	East Area	20130909	CD	Barb Wire	4	260201.45756400	3745308.2207100
E43A4G10022	Maxey Range Complex	East Area	20130923	CD	6" long bolt	1	261926.67369000	3745410.3618500
E14A1G10015	Maxey Range Complex	East Area	20130919	CD	Chain	3	261866.43845200	3748002.7397100
E43A2G10009	Maxey Range Complex	East Area	20190917	CD	Scarp Metal	3	264809.68655700	3745420.4967000
E55A1G10012	Maxey Range Complex	East Area	20130918	CD	Barb Wire	2	262990.57131300	3744428.3537800
E14A1G10049	Maxey Range Complex	East Area	20130919	CD	Wire	6	261878.73550500	3748013.1116200
E43A2G10011	Maxey Range Complex	East Area	20190917	CD	Nails	2	264801.95193900	3745414.0376500
E42A1G10006	Maxey Range Complex	East Area	20130917	CD	Barb Wire	1	254731.06686600	3743528.2236600
E55A1G10013	Maxey Range Complex	East Area	20130918	CD	Barb Wire	1	262990.37545200	3744431.6493900
E4BA2G10014	Maxey Range Complex	East Area	20130920	CD	Trash Pit	3	262626.36351700	3748856.7523800
E43A2G10033	Maxey Range Complex	East Area	20190917	CD	Nails	3	264803.61889300	3745420.6778600
E8A1G10007	Maxey Range Complex	East Area	20130920	CD	Barb wire	1	264877.92333400	3748540.8787800
E14A1G10005	Maxey Range Complex	East Area	20130919	CD	Horse Shoe	3	261881.01953500	3748015.4912400
E44A8G10036	Maxey Range Complex	East Area	20130909	CD	Nail Pit	3	260201.78178300	3745312.4343800
E42A3G10036	Maxey Range Complex	East Area	20130916	CD	Trash Pit	6	264805.51795700	3745422.6935200
E8A1G10002	Maxey Range Complex	East Area	20130920	S	Seed	1	264879.71727600	3748537.6869800
E14A1G10026	Maxey Range Complex	East Area	20130919	CD	Trash Pit	3	261874.26837900	3748014.7017200
E4BA2G10003	Maxey Range Complex	East Area	20130920	CD	Trash Pit	3	262624.21252800	3748867.3262300
E52A3G10040	Maxey Range Complex	East Area	20130918	CD	Wire	1	261391.77439100	3744605.8469400
E62A1G10003	Maxey Range Complex	East Area	20130918	S	Seed	2	263153.58500400	3743851.0829100
E52A3G10013	Maxey Range Complex	East Area	20130918	CD	Wire	1	261393.33185200	3744604.9574200
E62A1G10021	Maxey Range Complex	East Area	20130918	CD	Barb Wire	1	263154.38766100	3743860.5158000
E52A3G10032	Maxey Range Complex	East Area	20130918	CD	Barb Wire	2	261389.61589100	3744607.1454300
E44A8G10009	Maxey Range Complex	East Area	20130909	CD	Nail Pit	4	260198.15180200	3745311.1720800
E62A1G10011	Maxey Range Complex	East Area	20130918	CD	Barb Wire	1	263155.26642900	3743856.6016400
E40A2G10003	Maxey Range Complex	East Area	20130916	CD	Nail	1	263899.56399900	3745668.8250000
E52A3G10039	Maxey Range Complex	East Area	20130918	CD	Barb Wire	0	261396.45921300	3744602.3103900
E14A1G10031	Maxey Range Complex	East Area	20130919	CD	Scrap Metal	3	261866.30742600	3748001.1573200
E42A3G10030	Maxey Range Complex	East Area	20130916	CD	Barb Wire	3	264806.87527300	3745415.6531600
E11A3G10001	Maxey Range Complex	East Area	20130919	CD	Barb Wire	1	260886.51980400	3748307.0176300
E55A1G10017	Maxey Range Complex	East Area	20130918	CD	Barb Wire	0	262990.14641300	3744422.3102200
E55A1G10020	Maxey Range Complex	East Area	20130918	CD	Barb Wire	1	262989.71605700	3744432.4245800
E42A3G10006	Maxey Range Complex	East Area	20130916	CD	Barb Wire	4	264808.66332600	3745416.6484100
E14A1G10018	Maxey Range Complex	East Area	20130919	CD	Barb Wire	3	261870.99039900	3748014.5709800
E55A1G10007	Maxey Range Complex	East Area	20130918	CD	Barb Wire	0	262991.18276700	3744429.1177600
E43A2G10043	Maxey Range Complex	East Area	20190917	CD	Nails	3	264811.31129300	3745418.9881300
E44A8G10011	Maxey Range Complex	East Area	20130909	CD	Horse Shoe	2	260198.24114700	3745312.3613800

E42A3G10024	Maxey Range Complex	East Area	20130916	CD	Barb Wire	3	264806.26289300	3745421.5871400
E42A3G10020	Maxey Range Complex	East Area	20130916	CD	Nails	2	264804.90126200	3745425.4020500
E43A2G10005	Maxey Range Complex	East Area	20190917	CD	Scrap Metal	6	264804.20232500	3745422.0600900
E43A2G10034	Maxey Range Complex	East Area	20190917	CD	Nails	3	264805.18543300	3745412.1272100
E5BA1G10001	Maxey Range Complex	East Area	20130920	CD	Scrap Metal	8	262303.82566200	3748775.5155800
E14A1G10040	Maxey Range Complex	East Area	20130919	CD	Scrap Metal	3	261865.54217500	3748014.0178700
E5BA1G10074	Maxey Range Complex	East Area	20130920	CD	Nails	3	262298.95125400	3748781.5813100
E4BA2G10025	Maxey Range Complex	East Area	20130920	CD	Barb Wire	2	262627.15849700	3748857.3328500
E62A1G10007	Maxey Range Complex	East Area	20130918	CD	Barb Wire	1	263152.43719800	3743860.6709400
E14A1G10006	Maxey Range Complex	East Area	20130919	CD	Horse Shoe	3	261877.53117400	3748000.8825300
E42A3G10033	Maxey Range Complex	East Area	20130916	CD	Barb Wire	3	264808.02503700	3745412.6406500
E4BA2G10005	Maxey Range Complex	East Area	20130920	CD	Trash Pit	1	262626.72453500	3748870.7524500
E4BA2G10030	Maxey Range Complex	East Area	20130920	CD	Barb Wire	1	262623.83015400	3748862.5482200
E52A3G10012	Maxey Range Complex	East Area	20130918	CD	Barb Wire	1	261391.62073200	3744609.8588000
E43A2G10029	Maxey Range Complex	East Area	20190917	CD	Nails	1	264806.24738600	3745414.3877500
E42A1G10007	Maxey Range Complex	East Area	20130917	CD	Barb Wire	1	254732.68384000	3743528.8947000
E43A4G10013	Maxey Range Complex	East Area	20130917	CD	Steel Bar	2	261938.23300800	3745412.0350500
E8A1G10001	Maxey Range Complex	East Area	20130920	CD	Metal can	1	264879.27254500	3748538.4842800
E43A2G10036	Maxey Range Complex	East Area	20190917	CD	Nails	2	264804.88100100	3745415.1092000
E43A2G10038	Maxey Range Complex	East Area	20190917	CD	Nails	2	264801.58706600	3745410.1689200
E42A3G10009	Maxey Range Complex	East Area	20130916	CD	Barb Wire	3	264809.75357000	3745416.8446900
E14A1G10007	Maxey Range Complex	East Area	20130919	CD	Scrap Metal	3	261866.32838400	3748013.1885700
E42A1G10002	Maxey Range Complex	East Area	20130917	CD	Barb Wire	1	254724.28644900	3743529.6461000
E24A1G10008	Maxey Range Complex	East Area	20130917	CD	Nails	8	264334.97209900	3747040.8788700
E42A3G10047	Maxey Range Complex	East Area	20130916	CD	Scrap Metal	1	264810.44661400	3745423.4323500
E14A1G10039	Maxey Range Complex	East Area	20130919	CD	Trash Pit	3	261880.84737600	3748008.5221400
E62A1G10012	Maxey Range Complex	East Area	20130918	CD	Barb Wire	0	263151.37880400	3743861.4563200
E52A3G10036	Maxey Range Complex	East Area	20130918	CD	Barb Wire	2	261398.12100500	3744601.4695700
E42A1G10008	Maxey Range Complex	East Area	20130917	CD	Barb Wire	2	254724.51320900	3743523.8026000
E42A3G10039	Maxey Range Complex	East Area	20130916	CD	Nails	12	264810.38674800	3745421.5381900
E55A1G10010	Maxey Range Complex	East Area	20130918	CD	Barb Wire	0	262992.00489100	3744430.0442100
E52A3G10005	Maxey Range Complex	East Area	20130918	CD	Barb Wire	1	261384.60138800	3744609.8021400
E62A1G10032	Maxey Range Complex	East Area	20130918	CD	Barb Wire	1	263158.93015600	3743857.0128500
E52A3G10020	Maxey Range Complex	East Area	20130918	CD	Wire	0	261393.03684500	3744609.2174800
E44A8G10004	Maxey Range Complex	East Area	20130909	CD	Plow Blade	6	260211.10208400	3745312.6385300
E8A1G10013	Maxey Range Complex	East Area	20130920	CD	Barb wire	1	264882.02180400	3748539.2090200
E62A1G10037	Maxey Range Complex	East Area	20130918	CD	Barb Wire	1	263159.08919800	3743851.0225700
E24A1G10009	Maxey Range Complex	East Area	20130917	CD	Cans	9	264330.30604600	3747041.8295700
E62A1G10023	Maxey Range Complex	East Area	20130918	CD	Barb Wire	2	263152.86592000	3743861.4620000
E43A4G10008	Maxey Range Complex	East Area	20130917	CD	Srcap Metal	1	261935.80305900	3745411.7565200
E42A3G10043	Maxey Range Complex	East Area	20130916	CD	Nails	2	264805.04777500	3745421.4308000
E4BA2G10039	Maxey Range Complex	East Area	20130920	CD	Trash Pit	3	262628.67118900	3748868.9498200
E42A3G10022	Maxey Range Complex	East Area	20130916	CD	Nails	1	264808.28206700	3745423.1974900
E11A3G10018	Maxey Range Complex	East Area	20130919	CD	Barb Wire	0	260879.63556400	3748306.2298000
E8A1G10018	Maxey Range Complex	East Area	20130920	CD	Barb wire	1	264883.11406700	3748535.2543500
E43A2G10012	Maxey Range Complex	East Area	20190917	CD	Nails	2	264806.53505100	3745416.5642300
E44A8G10023	Maxey Range Complex	East Area	20130909	CD	Wire	4	260203.16533700	3745312.0379800
E43A2G10041	Maxey Range Complex	East Area	20190917	CD	Nails	3	264802.77413900	3745424.1445400
E11A3G10008	Maxey Range Complex	East Area	20130919	CD	Barb Wire	4	260885.33749700	3748302.8127800
E52A3G10035	Maxey Range Complex	East Area	20130918	CD	Wire	0	261387.78725900	3744608.5386900
E14A1G10011	Maxey Range Complex	East Area	20130919	CD	Trash Pit	2	261869.27538000	3748014.6296100
E43A2G10019	Maxey Range Complex	East Area	20190917	CD	Nails	3	264811.88680200	3745423.6899200
E43A2G10032	Maxey Range Complex	East Area	20190917	CD	Nails	3	264813.34323700	3745420.9694900
E44A8G10001	Maxey Range Complex	East Area	20130909	CD	Barb Wire	2	260210.71653600	3745308.4454300
E42A3G10005	Maxey Range Complex	East Area	20130916	CD	Barb Wire	0	264809.65199800	3745411.2520000
E4BA2G10031	Maxey Range Complex	East Area	20130920	CD	Barb Wire	3	262630.22766100	3748858.2718000
E43A2G10030	Maxey Range Complex	East Area	20190917	CD	Scrap Metal	1	264808.95115900	3745421.3641500
E43A2G10035	Maxey Range Complex	East Area	20190917	CD	Nails	1	264800.84352500	3745414.2486000
E42A3G10004	Maxey Range Complex	East Area	20130916	S	Seed	2	264801.41177200	3745414.6792400
E40A2G10001	Maxey Range Complex	East Area	20130916	S	Seed	2	263909.85140300	3745679.4540200
E55A1G10015	Maxey Range Complex	East Area	20130918	CD	Barb Wire	0	262991.11933000	3744431.9635300
E5BA1G10030	Maxey Range Complex	East Area	20130920	CD	Nail s & Wire	2	262295.15740500	3748781.7710400
E42A3G10013	Maxey Range Complex	East Area	20130916	CD	Wire	2	264810.06083000	3745422.4460700
E44A8G10033	Maxey Range Complex	East Area	20130909	CD	Barb Wire	10	260211.29587800	3745316.3272600
E11A3G10007	Maxey Range Complex	East Area	20130919	CD	Axe head	1	260878.02493500	3748312.1325100
E5BA1G10049	Maxey Range Complex	East Area	20130920	CD	Trash Pit	3	262300.25754000	3748774.9465100
E4BA2G10012	Maxey Range Complex	East Area	20130920	CD	Trash Pit	3	262617.10811800	3748860.8575100
E11A3G10019	Maxey Range Complex	East Area	20130919	CD	Barb Wire	0	260884.19452800	3748309.5643500
E14A1G10044	Maxey Range Complex	East Area	20130919	CD	Barb Wire	3	261865.57876100	3748011.3215700
E62A1G10015	Maxey Range Complex	East Area	20130918	CD	Barb Wire	0	263155.86313100	3743860.7568000
E42A3G10051	Maxey Range Complex	East Area	20130916	CD	Barb Wire	2	264813.16121600	3745423.1240900
E43A2G10008	Maxey Range Complex	East Area	20190917	CD	Nail Pit	2	264805.58544700	3745423.4511900
E44A8G10038	Maxey Range Complex	East Area	20130909	CD	Nail Pit	3	260204.25749700	3745307.9302200
E4BA2G10029	Maxey Range Complex	East Area	20130920	CD	Barb Wire	2	262626.57161200	3748868.8241500
E24A1G10005	Maxey Range Complex	East Area	20130917	CD	Fish Lure	1	264337.85912600	3747033.7779900

E55A1G10016	Maxey Range Complex	East Area	20130918	CD	Barb Wire	1	263003.32719500	3744432.2719900
E4BA2G10002	Maxey Range Complex	East Area	20130920	CD	Trash Pit	2	262627.42663900	3748870.1987500
E42A3G10016	Maxey Range Complex	East Area	20130916	CD	Barb Wire	2	264804.97921600	3745413.8849700
E8A1G10012	Maxey Range Complex	East Area	20130920	CD	Barb wire	2	264878.38208100	3748546.3837300
E8A1G10019	Maxey Range Complex	East Area	20130920	CD	Barb wire	1	264889.69500000	3748538.2504700
E42A3G10034	Maxey Range Complex	East Area	20130916	CD	Trash Pit	0	264806.12202400	3745420.7663500
E4BA2G10040	Maxey Range Complex	East Area	20130920	CD	Barb Wire	3	262622.14146900	3748869.4251500
E21A3G10001	Maxey Range Complex	East Area	20130917	S	Seed	1	263477.05362700	3747232.2538600
E8A1G10011	Maxey Range Complex	East Area	20130920	CD	Barb wire	1	264877.36468500	3748540.1036700
E11A3G10004	Maxey Range Complex	East Area	20130919	CD	Barb Wire	1	260886.01132300	3748301.8503300
E52A3G10004	Maxey Range Complex	East Area	20130918	CD	Barb Wire	1	261390.55027500	3744609.7180800
E43A4G10021	Maxey Range Complex	East Area	20130917	CD	Scrap Metal	2	261929.59589900	3745407.7357900
E14A1G10034	Maxey Range Complex	East Area	20130919	CD	Trash Pit	4	261878.83560500	3748015.7412300
E62A1G10024	Maxey Range Complex	East Area	20130918	CD	Barb Wire	2	263154.55212400	3743856.0326800
E4BA2G10015	Maxey Range Complex	East Area	20130920	CD	Trash Pit	2	262616.75231300	3748860.1723000
E43A2G10044	Maxey Range Complex	East Area	20190917	CD	Nails	3	264800.70044000	3745418.7105700
E42A3G10003	Maxey Range Complex	East Area	20130916	CD	24" Rebar	3	264801.40436400	3745421.9558400
E52A3G10016	Maxey Range Complex	East Area	20130918	CD	Barb Wire	2	261390.65282700	3744602.2884900
E11A3G10015	Maxey Range Complex	East Area	20130919	CD	Barb Wire	1	260885.04003700	3748305.3460400
E52A3G10021	Maxey Range Complex	East Area	20130918	CD	Wire	1	261391.93544400	3744603.7551500
E44A8G10005	Maxey Range Complex	East Area	20130909	CD	Barb Wire	3	260210.10606800	3745319.1469100
E55A1G10002	Maxey Range Complex	East Area	20130918	CD	Barb Wire	0	262991.90384800	3744421.4888800
E8A1G10006	Maxey Range Complex	East Area	20130920	CD	Barb wire	0	264881.29559300	3748543.9461600
E43A4G10043	Maxey Range Complex	East Area	20130917	CD	Nails & Wire	3	261925.39639800	3745408.5028100
E11A3G10023	Maxey Range Complex	East Area	20130919	CD	Barb Wire	2	260886.94698700	3748311.7046100
E52A3G10015	Maxey Range Complex	East Area	20130918	CD	Barb Wire	2	261387.48202600	3744610.3420400
E42A3G10038	Maxey Range Complex	East Area	20130916	CD	Barb Wire	3	264800.97459700	3745417.7472200
E43A2G10007	Maxey Range Complex	East Area	20190917	CD	Scarp Metal	1	264806.15053000	3745422.3770400
E52A3G10042	Maxey Range Complex	East Area	20130918	CD	Wire	1	261393.84642400	3744606.8901100
E11A3G10011	Maxey Range Complex	East Area	20130919	CD	Barb Wire	1	260885.90968300	3748316.3806200
E42A3G10049	Maxey Range Complex	East Area	20130916	CD	Metal Bracket	4	264806.71710200	3745412.4436300
E43A2G10040	Maxey Range Complex	East Area	20190917	CD	Nails	3	264812.86630100	3745421.0745600
E44A8G10026	Maxey Range Complex	East Area	20130909	CD	Barb Wire	2	260199.57606900	3745320.6805900
E62A1G10020	Maxey Range Complex	East Area	20130918	CD	Barb Wire	2	263150.66829800	3743860.7187300
E4BA2G10034	Maxey Range Complex	East Area	20130920	CD	Barb Wire	3	262627.26530100	3748868.1581500
E52A3G10010	Maxey Range Complex	East Area	20130918	CD	Barb Wire	0	261391.48987700	3744609.5422900
E42A3G10008	Maxey Range Complex	East Area	20130916	CD	Barb Wire	1	264814.54814500	3745422.9869300
E55A1G10019	Maxey Range Complex	East Area	20130918	CD	Barb Wire	0	262994.82655300	3744431.4866600
E24A1G10001	Maxey Range Complex	East Area	20130917	CD	Wire Around Tree	0	264339.42531500	3747033.4247000
E62A1G10008	Maxey Range Complex	East Area	20130918	CD	Barb Wire	1	263148.77619100	3743854.0258200
E14A1G10029	Maxey Range Complex	East Area	20130919	CD	Wire	3	261873.09269500	3748000.4548400
E14A1G10046	Maxey Range Complex	East Area	20130919	CD	Scrap Metal	1	261878.30163600	3748001.7139200
E62A1G10010	Maxey Range Complex	East Area	20130918	CD	Barb Wire	2	263150.10575200	3743856.8729200
E4BA2G10016	Maxey Range Complex	East Area	20130920	CD	Trash Pit	2	262629.13660700	3748863.4602100
E42A3G10026	Maxey Range Complex	East Area	20130916	CD	Trash Pit	4	264805.68650800	3745425.7550100
E11A3G10017	Maxey Range Complex	East Area	20130919	CD	Barb Wire	0	260881.12397600	3748307.0951800
E43A4G10051	Maxey Range Complex	East Area	20130923	CD	Barb Wire	3	261927.10863600	3745409.0866100
E43A2G10037	Maxey Range Complex	East Area	20190917	CD	Scrap Metal	1	264805.87749700	3745413.4267700
E11A3G10010	Maxey Range Complex	East Area	20130919	CD	Barb Wire	0	260884.46134000	3748301.8943500
E44A8G10027	Maxey Range Complex	East Area	20130909	CD	Barb Wire	3	260198.08153300	3745310.2367000
E11A3G10026	Maxey Range Complex	East Area	20130919	CD	Barb Wire	3	260886.46692900	3748309.6540000
E42A3G10028	Maxey Range Complex	East Area	20130916	CD	Barb Wire	9	264811.44040700	3745414.9807400
E55A1G10009	Maxey Range Complex	East Area	20130918	CD	Barb Wire	0	262999.39846900	3744431.6465000
E14A1G10017	Maxey Range Complex	East Area	20130919	CD	Trash Pit	4	261866.93315800	3748015.0696500
E4BA2G10037	Maxey Range Complex	East Area	20130920	CD	Barb Wire	3	262617.31367400	3748865.1797700
E21A3G10005	Maxey Range Complex	East Area	20130917	CD	Nails	1	263470.77278700	3747223.7586200
E44A8G10019	Maxey Range Complex	East Area	20130909	CD	Barb Wire	4	260212.53774600	3745314.1872200
E42A1G10005	Maxey Range Complex	East Area	20130917	CD	Barb Wire	1	254723.57120800	3743530.2585400
E52A3G10033	Maxey Range Complex	East Area	20130918	CD	Barb Wire	2	261385.83028200	3744604.3382600
E44A8G10007	Maxey Range Complex	East Area	20130909	CD	Horse Shoe	4	260210.84065200	3745319.4487100
E14A1G10021	Maxey Range Complex	East Area	20130919	CD	Chain	3	261867.17841700	3748003.1872300
E62A1G10017	Maxey Range Complex	East Area	20130918	CD	Barb Wire	0	263157.35895400	3743860.3610400
E42A3G10044	Maxey Range Complex	East Area	20130916	CD	Nails	3	264805.27960100	3745420.1368500
E43A2G10002	Maxey Range Complex	East Area	20190917	CD	Nail Pit	3	264812.34935900	3745417.9688900
E62A1G10034	Maxey Range Complex	East Area	20130918	CD	Barb Wire	2	263156.77273300	3743854.9283700
E11A3G10024	Maxey Range Complex	East Area	20130919	MD	30 cal bullet	4	260892.21442000	3748301.7635100
E43A2G10045	Maxey Range Complex	East Area	20190917	CD	Nails	4	264812.48315400	3745422.3907500
E43A2G10052	Maxey Range Complex	East Area	20190917	CD	Nails	3	264801.86537600	3745420.0999900
E44A8G10025	Maxey Range Complex	East Area	20130909	CD	Can	0	260212.58149100	3745314.7180300
E52A3G10026	Maxey Range Complex	East Area	20130918	CD	Barb Wire	1	261385.32955500	3744605.3820100
E24A1G10004	Maxey Range Complex	East Area	20130917	S	Seed	2	264337.00652000	3747044.0188500
E52A3G10003	Maxey Range Complex	East Area	20130918	CD	Barb Wire	2	261387.68525300	3744605.0235300
E43A2G10028	Maxey Range Complex	East Area	20190917	CD	Barb Wire	3	264799.40910700	3745410.7370600
E8A1G10016	Maxey Range Complex	East Area	20130920	CD	Barb wire	1	264886.07627500	3748549.3199900
E42A3G10046	Maxey Range Complex	East Area	20130916	CD	Barb Wire	2	264804.32990400	3745419.0946900

E44A8G10014	Maxey Range Complex	East Area	20130909	CD	Can	0	260201.23723600	3745314.5571600
E52A3G10018	Maxey Range Complex	East Area	20130918	CD	Barb Wire	0	261390.37823500	3744609.1176600
E42A3G10012	Maxey Range Complex	East Area	20130916	CD	Barb Wire	1	264807.93306900	3745420.3762800
E42A3G10001	Maxey Range Complex	East Area	20130916	CD	Barb Wire	0	264805.46418100	3745418.7777300
E42A1G10001	Maxey Range Complex	East Area	20130917	S	Seed	2	254721.42595800	3743521.2390900
E43A4G10048	Maxey Range Complex	East Area	20130917	CD	Nails & Wire	4	261924.77473900	3745417.9405000
E43A4G10035	Maxey Range Complex	East Area	20130917	CD	Boot Spur	2	261935.70982600	3745412.5673500
E44A8G10018	Maxey Range Complex	East Area	20130909	CD	Barb Wire	6	260197.98998300	3745308.2194500
E24A1G10012	Maxey Range Complex	East Area	20130917	CD	Fish Lure	1	264332.68753400	3747040.7450100
E62A1G10026	Maxey Range Complex	East Area	20130918	CD	Barb Wire	2	263159.20647800	3743856.2972000
E5BA1G10056	Maxey Range Complex	East Area	20130920	CD	Nails & Wire	3	262296.39218100	3748784.0295200
E5BA1G10099	Maxey Range Complex	East Area	20130920	CD	Nails	3	262293.54700400	3748785.1743500
E52A3G10028	Maxey Range Complex	East Area	20130918	CD	Barb Wire	2	261394.54746400	3744609.9115900
E55A1G10028	Maxey Range Complex	East Area	20130918	CD	Barb Wire	1	263000.53762300	3744420.2746500
E4BA2G10033	Maxey Range Complex	East Area	20130920	CD	Barb Wire	2	262624.71511400	3748864.2655000
E44A8G10028	Maxey Range Complex	East Area	20130909	CD	Barb Wire	3	260208.97752500	3745313.9533400
E62A1G10036	Maxey Range Complex	East Area	20130918	CD	Barb Wire	1	263151.60311700	3743856.2932500
E11A3G10009	Maxey Range Complex	East Area	20130919	CD	Barb Wire	2	260885.02746200	3748316.1471600
E55A1G10001	Maxey Range Complex	East Area	20130918	CD	Barb Wire	0	262991.70873800	3744422.4091700
E43A2G10016	Maxey Range Complex	East Area	20190917	CD	Nails	2	264810.05029900	3745417.7256600
E43A2G10031	Maxey Range Complex	East Area	20190917	CD	Nails	2	264801.38240500	3745412.3992000
E44A8G10006	Maxey Range Complex	East Area	20130909	CD	Chain	5	260203.48177900	3745307.0321100
E4BA2G10018	Maxey Range Complex	East Area	20130920	CD	Trash Pit	3	262628.95123600	3748870.6143000
E44A8G10017	Maxey Range Complex	East Area	20130909	CD	Barb Wire	10	260209.53770000	3745312.1259300
E8A1G10015	Maxey Range Complex	East Area	20130920	CD	Barb wire	1	264877.26077400	3748538.5294100
E11A3G10021	Maxey Range Complex	East Area	20130919	CD	Barb Wire	2	260886.90587700	3748312.3659500
E43A2G10004	Maxey Range Complex	East Area	20190917	CD	Metal File & Nails	3	264805.59492700	3745422.6765600
E24A1G10003	Maxey Range Complex	East Area	20130917	CD	Fish Lure	1	264338.50844000	3747035.1993900
E5BA1G10075	Maxey Range Complex	East Area	20130920	CD	Wire	3	262300.77640900	3748779.3883000
E52A3G10008	Maxey Range Complex	East Area	20130918	CD	Barb Wire	0	261396.54424700	3744606.2552200
E43A4G10053	Maxey Range Complex	East Area	20130917	CD	Nails	1	261934.01050100	3745413.1726100
E8A1G10008	Maxey Range Complex	East Area	20130920	CD	Barb wire	1	264877.03148200	3748533.8043400
E55A1G10008	Maxey Range Complex	East Area	20130918	CD	Barb Wire	0	262989.98062200	3744425.2100600
E11A3G10002	Maxey Range Complex	East Area	20130919	CD	Barb Wire	3	260885.75224500	3748306.2889400
E43A4G10029	Maxey Range Complex	East Area	20130917	CD	Nails & Wire	3	261927.46966000	3745413.7601500
E62A1G10009	Maxey Range Complex	East Area	20130918	CD	Barb Wire	1	263150.95551000	3743854.3555200
E42A3G10010	Maxey Range Complex	East Area	20130916	CD	Barb Wire	0	264809.11116900	3745411.5863200
E24A1G10002	Maxey Range Complex	East Area	20130917	CD	Fish Lure	1	264340.15310600	3747033.9062900
E52A3G10041	Maxey Range Complex	East Area	20130918	CD	Barb Wire	0	261392.38922100	3744607.3043600
E8A1G10003	Maxey Range Complex	East Area	20130920	CD	Barb wire	1	264883.97357900	3748538.3788200
E14A1G10010	Maxey Range Complex	East Area	20130919	CD	Scrap Metal	2	261880.54695400	3748002.1556300
E42A3G10032	Maxey Range Complex	East Area	20130916	CD	Barb Wire	0	264804.74643500	3745418.4655100
E14A1G10013	Maxey Range Complex	East Area	20130919	CD	Trash Pit	3	261870.19925100	3748012.0910800
E43A2G10049	Maxey Range Complex	East Area	20190917	CD	Nails	4	264809.37799500	3745415.7866500
E14A1G10003	Maxey Range Complex	East Area	20130919	CD	Trash Pit	3	261871.77825300	3748015.3309400
E5BA1G10066	Maxey Range Complex	East Area	20130920	CD	Barb Wire	6	262304.49324300	3748772.2163000
E38A2G10001	Maxey Range Complex	East Area	20130916	S	Seed	1	263621.26822500	3745806.5303300
E42A3G10048	Maxey Range Complex	East Area	20130916	CD	Barb Wire	3	264810.56919800	3745413.1643100
E11A3G10014	Maxey Range Complex	East Area	20130919	CD	Barb Wire	0	260884.30113600	3748304.8296300
E14A1G10012	Maxey Range Complex	East Area	20130919	CD	Trash Pit	3	261869.43283600	3748015.5743900
E52A3G10001	Maxey Range Complex	East Area	20130918	CD	Trash Pit	3	261389.05412100	3744609.0764800
E55A1G10025	Maxey Range Complex	East Area	20130918	CD	Barb Wire	0	263003.23578900	3744433.2052100
E43A2G10050	Maxey Range Complex	East Area	20190917	CD	Nails	3	264808.72578000	3745411.1276100
E4BA2G10020	Maxey Range Complex	East Area	20130920	CD	Barb Wire	3	262623.38037700	3748856.9279700
E11A3G10012	Maxey Range Complex	East Area	20130919	CD	Barb Wire	0	260880.37545100	3748306.7746400
E43A2G10006	Maxey Range Complex	East Area	20190917	CD	Shared Contact #9	3	264808.89493700	3745419.9830600
E5BA1G10009	Maxey Range Complex	East Area	20130920	S	Seed	2	262301.49281000	3748782.6553400
E42A3G10050	Maxey Range Complex	East Area	20130916	CD	Chain link	3	264803.17307900	3745426.5401200
E55A1G10011	Maxey Range Complex	East Area	20130918	S	Seed	4	262993.22688600	3744424.9192000
E52A3G10038	Maxey Range Complex	East Area	20130918	CD	Barb Wire	0	261387.83338500	3744608.2661700
E44A8G10024	Maxey Range Complex	East Area	20130909	CD	Scrap Metal	3	260203.37939900	3745314.7939000
E52A3G10007	Maxey Range Complex	East Area	20130918	CD	Barb Wire	2	261385.99028500	3744609.8461400
E42A3G10045	Maxey Range Complex	East Area	20130916	CD	Barb Wire	4	264807.21709100	3745410.9250000
E21A3G10003	Maxey Range Complex	East Area	20130917	MD	Frag	3	263481.27140700	3747232.8229200
E42A3G10025	Maxey Range Complex	East Area	20130916	CD	Nails	1	264808.20811100	3745424.9673400
E11A3G10013	Maxey Range Complex	East Area	20130919	CD	Barb Wire	0	260885.85703400	3748304.4936500
E62A1G10013	Maxey Range Complex	East Area	20130918	CD	Barb Wire	1	263152.96648700	3743858.9519200
E42A3G10037	Maxey Range Complex	East Area	20130916	CD	Barb Wire	2	264798.94741300	3745411.6682700
E4BA2G10041	Maxey Range Complex	East Area	20130920	CD	Barb Wire	2	262622.67031000	3748866.7232300
E24A1G10007	Maxey Range Complex	East Area	20130917	CD	Fish Lure	1	264339.59130000	3747031.4499800
E8A1G10014	Maxey Range Complex	East Area	20130920	CD	Barb wire	1	264887.57936900	3748547.7090700
E44A8G10021	Maxey Range Complex	East Area	20130909	CD	Barb Wire	4	260209.36301900	3745317.6755700
E14A1G10028	Maxey Range Complex	East Area	20130919	CD	Trash Pit	3	261874.09705300	3748013.9328800
E52A3G10014	Maxey Range Complex	East Area	20130918	CD	Barb Wire	2	261387.53226100	3744610.0452500
E44A8G10020	Maxey Range Complex	East Area	20130909	CD	Barb Wire	23	260211.24639700	3745305.5124600

E5BA1G10105	Maxey Range Complex	East Area	20130920	CD	Nails	2	262298.88347800	3748777.7102800
E55A1G10022	Maxey Range Complex	East Area	20130918	CD	Barb Wire	0	262998.08016100	3744430.9207100
E5BA1G10007	Maxey Range Complex	East Area	20130920	CD	Nail Pit	3	262292.82108500	3748789.2838700
E42A3G10002	Maxey Range Complex	East Area	20130916	CD	Plow Blade	4	264808.88395400	3745422.7363200
E21A3G10004	Maxey Range Complex	East Area	20130917	CD	Can	0	263480.93030700	3747229.0432800
E24A1G10010	Maxey Range Complex	East Area	20130917	CD	Can	1	264337.33499700	3747040.0734400
E52A3G10017	Maxey Range Complex	East Area	20130918	CD	Barb Wire	2	261386.14925300	3744608.1475000
E55A1G10005	Maxey Range Complex	East Area	20130918	CD	Barb Wire	0	262990.50831200	3744426.3852600
E8A1G10004	Maxey Range Complex	East Area	20130920	CD	Barb wire	0	264885.32955300	3748537.5633300
E11A3G10016	Maxey Range Complex	East Area	20130919	CD	Barb Wire	0	260878.41826200	3748317.1918000
E28A4G10002	Maxey Range Complex	East Area	20130917	S	Seed	1	263312.25576100	3746656.0444100
E11A3G10027	Maxey Range Complex	East Area	20130919	CD	Barb Wire	0	260881.39252800	3748317.2103500
E62A1G10016	Maxey Range Complex	East Area	20130918	CD	Barb Wire	0	263158.15915500	3743858.2715000
E14A1G10024	Maxey Range Complex	East Area	20130919	CD	Scrap Metal	3	261867.16438100	3748005.0588900
E43A2G10018	Maxey Range Complex	East Area	20190917	CD	Scrap Metal	6	264803.57964300	3745410.5227900
E42A3G10040	Maxey Range Complex	East Area	20130916	CD	Barb Wire	2	264802.20080700	3745417.9773000
E62A1G10030	Maxey Range Complex	East Area	20130918	CD	Barb Wire	3	263148.64761700	3743856.5866000
E42A3G10015	Maxey Range Complex	East Area	20130916	CD	Barb Wire	0	264808.65652200	3745411.8625200
E62A1G10004	Maxey Range Complex	East Area	20130918	CD	Barb Wire	2	263156.73933900	3743856.8444500
E4BA2G10017	Maxey Range Complex	East Area	20130920	CD	Trash Pit	2	262624.28937000	3748868.2864200
E44A8G10008	Maxey Range Complex	East Area	20130909	CD	Barb Wire	3	260210.76998200	3745309.8889100
E4BA2G10010	Maxey Range Complex	East Area	20130920	MD	60 mm Mortar	4	262628.22113800	3748863.2261600
E4BA2G10021	Maxey Range Complex	East Area	20130920	CD	Barb Wire	1	262627.19197000	3748867.2306600
E43A4G10061	Maxey Range Complex	East Area	20130917	CD	Nails	1	261938.16979100	3745405.8511100
E43A2G10023	Maxey Range Complex	East Area	20190917	CD	Barb Wire	2	264799.02445300	3745410.6937000
E52A3G10030	Maxey Range Complex	East Area	20130918	CD	Barb Wire	1	261387.07286300	3744607.4724100
E44A8G10034	Maxey Range Complex	East Area	20130909	CD	Barb Wire	8	260207.32329500	3745319.8638200
E43A4G10001	Maxey Range Complex	East Area	20130917	CD	Trash Pit	4	261937.03530300	3745410.6692600
E14A1G10038	Maxey Range Complex	East Area	20130919	CD	Trash Pit	1	261869.42549900	3748011.0136500
E14A1G10025	Maxey Range Complex	East Area	20130919	CD	Nail Pit	4	261870.90293900	3748003.1857400
E14A1G10001	Maxey Range Complex	East Area	20130919	CD	Trash Pit	4	261867.86800800	3748015.5466300
E43A2G10013	Maxey Range Complex	East Area	20190917	CD	Nails	3	264802.95727800	3745413.5071300
E42A3G10027	Maxey Range Complex	East Area	20130916	CD	Barb Wire	5	264807.45299900	3745415.4700300
E28A4G10001	Maxey Range Complex	East Area	20130917	MD	30 cal bullet	3	263317.38147000	3746659.6003100
E43A2G10025	Maxey Range Complex	East Area	20190917	CD	Nails	3	264810.49597800	3745421.5967900
E5BA1G10048	Maxey Range Complex	East Area	20130920	CD	Nails	3	262307.00947000	3748783.1094700
E43A2G10042	Maxey Range Complex	East Area	20190917	CD	Nails	6	264814.39118800	3745421.8829000
E4BA2G10001	Maxey Range Complex	East Area	20130920	CD	Trash Pit	2	262628.23938100	3748871.0456700
E14A1G10019	Maxey Range Complex	East Area	20130919	CD	Trash Pit	4	261865.66128500	3748005.2396900
E62A1G10019	Maxey Range Complex	East Area	20130918	CD	Barb Wire	2	263151.40295800	3743857.8918100
E44A8G10016	Maxey Range Complex	East Area	20130909	CD	Wire	3	260199.27723900	3745308.8392000
E44A8G10002	Maxey Range Complex	East Area	20130909	S	Seed	3	260206.29482100	3745318.0332300
E43A2G10051	Maxey Range Complex	East Area	20190917	CD	Scrap Metal	0	264806.49357200	3745412.9596400
E14A1G10047	Maxey Range Complex	East Area	20130919	CD	Scrap Metal	3	261876.34008900	3748010.7732700
E45A6G10001	Maxey Range Complex	East Area	20130917	S	Seed	2	261256.54152600	3745251.6941800
E4BA2G10036	Maxey Range Complex	East Area	20130920	CD	Barb Wire	4	262624.02508300	3748864.9839800

APPENDIX C: MC INVESTIGATION DATA
MILITARY MUNITIONS RESPONSE PROGRAM
REMEDIAL INVESTIGATION/FEASIBILITY STUDY

FORMER CAMP MAXEY
Paris, Texas

MC data is included in electronic format

APPENDIX D: PHOTOGRAPH LOG
MILITARY MUNITIONS RESPONSE PROGRAM
REMEDIAL INVESTIGATION/FEASIBILITY STUDY

FORMER CAMP MAXEY
Paris, Texas

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas
Photo No. 1 / **Date:** 9/25/2013	

Direction Photo Taken:
From the southeast corner looking northward

Description:
DU: W18A2G1

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas
Photo No. 2 / **Date:** 9/25/2013	

Direction Photo Taken:
N/A

Description:
DU: W23A2G1
Excavation crater of 76mm APHE

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 3	**Date:** 9/25/2013

Direction Photo Taken:
From southeast corner facing northwest

Description:
DU: W23A2G1

PHOTOGRAPHIC LOG

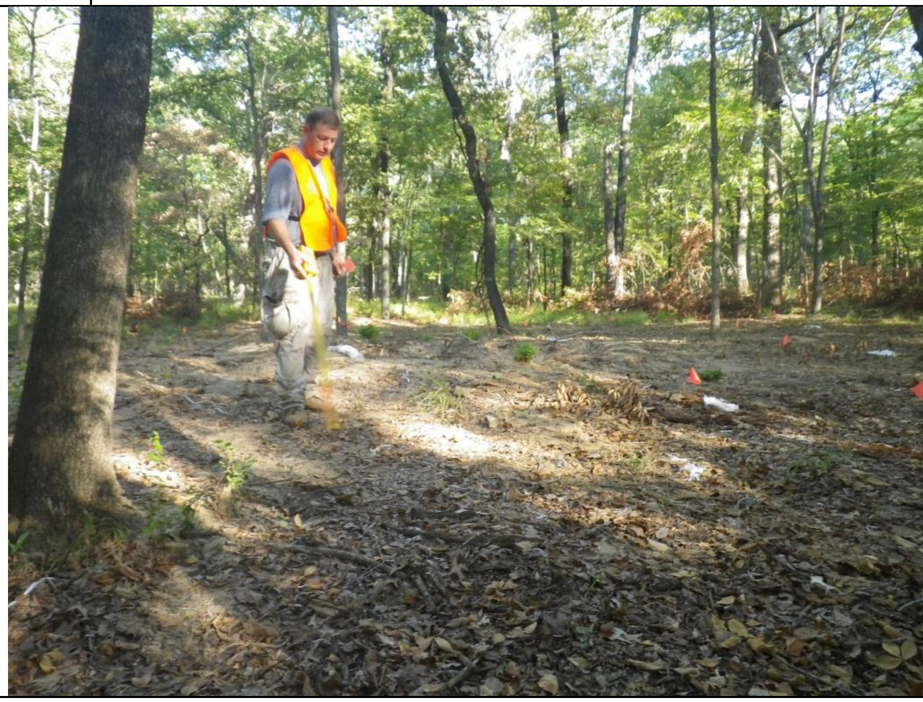
Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 4	**Date:** 9/25/2013

Direction Photo Taken:
N/A

Description:
DU: W18A2G2
Patrick DeCarvalho sampling in the southwest corner

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	Location: Lamar county, Texas
Photo No. 5 / **Date:** 9/26/2013	
Direction Photo Taken: From southeast corner looking northwest	
Description: DU: W27A2G1 Unexploded ordnance (UXO) technician Rob Zoss performing sweep prior to sampling. Note sandbag fragments from detonated ordnance.	

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	Location: Lamar county, Texas
Photo No. 6 / **Date:** 9/26/2013	
Direction Photo Taken: N/A	
Description: DU: W27A2G1: Performing sweep around detonated ordnance crater.	

PHOTOGRAPHIC LOG		
Property Name: Former Camp Maxey		**Location:** Lamar county, Texas
Photo No. 7	**Date:** 9/26/2013	
Direction Photo Taken: N/A		
Description: DU: W27A2G1: Detonated ordnance crater partially filled with introduced sand from sandbags (crater edge outlined in yellow).		

PHOTOGRAPHIC LOG		
Property Name: Former Camp Maxey		**Location:** Lamar county, Texas
Photo No. 8	**Date:** 9/26/2013	
Direction Photo Taken: N/A		
Description: DU: W27A2G1: Overhead tree canopy littered with sandbag debris from detonated ordnance (highlighted in yellow) illustrating magnitude of explosion.		

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 9 | **Date:** 9/26/2013

Direction Photo Taken:
Northwest corner looking southeast

Description:
DU: 31A2G1
Setting up grid and UXO tech clearing sample locations

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 10 | **Date:** 9/26/2013

Direction Photo Taken:
N/A

Description:
DU: 31A2G1
Metal fragment next to pen for scale (highlighted in yellow).

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 11	**Date:** 9/26/2013
Direction Photo Taken: From northeast corner looking southwest	
Description: DU: 35A2G1	

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 12	**Date:** 9/27/2013
Direction Photo Taken: From northwest corner looking southeast	
Description: DU: W45A2G1	

	PHOTOGRAPHIC LOG
Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. **13**	**Date:** 9/27/2013	
Direction Photo Taken: N/A		
Description: DU: W45A2G1 Suspected ordnance explosion crater from prior to this job (highlighted in yellow).		

	PHOTOGRAPHIC LOG
Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. **14**	**Date:** 9/27/2013	
Direction Photo Taken: From southwest looking northeast		
Description: DU: W35A2G2		

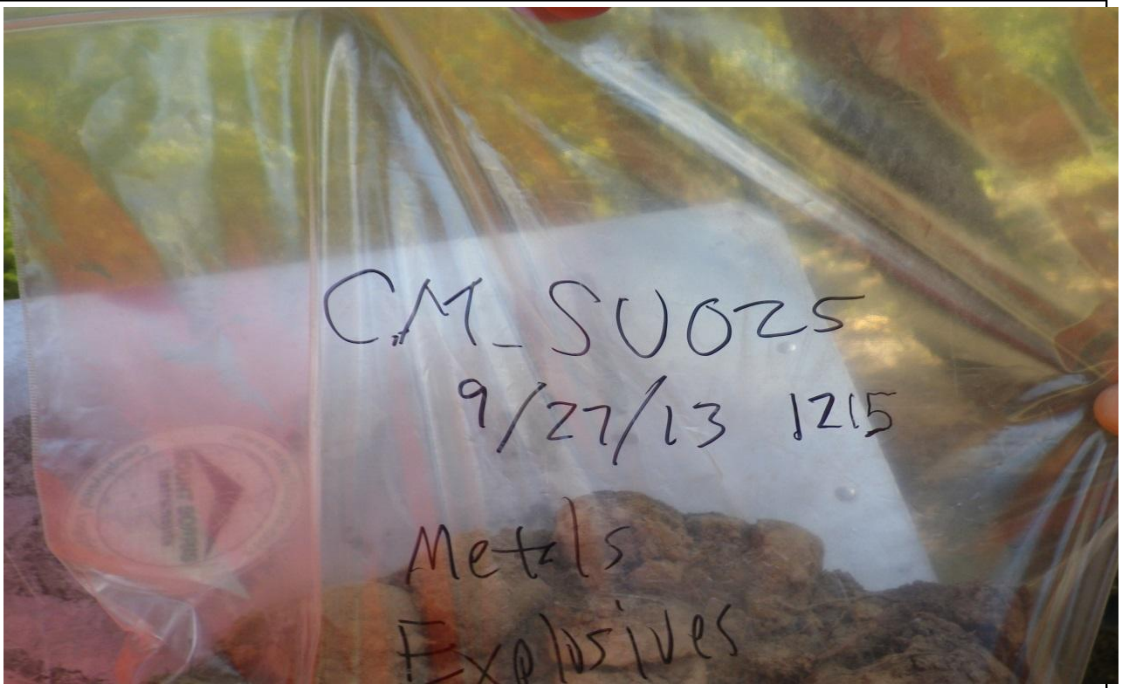
PHOTOGRAPHIC LOG

Property Name:	Location:
Former Camp Maxey	Lamar county, Texas

Photo No.	Date:
15	9/27/2013

Direction Photo Taken:
N\A

Description:
DU:W38A2G1
Bag of soil samples taken with time, date and analytes listed.



PHOTOGRAPHIC LOG

Property Name:	Location:
Former Camp Maxey	Lamar county, Texas

Photo No.	Date:
16	9/27/2013

Direction Photo Taken:
From northwest corner looking southeast.

Description:
DU:38A2G1

	PHOTOGRAPHIC LOG
Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 17	**Date:** 9/29/2013	
Direction Photo Taken: From northwest looking southeast		
Description: DU:W40A2G1 UXO sweep of decision unit prior to sampling.		

	PHOTOGRAPHIC LOG
Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 18	**Date:** 9/29/2013	
Direction Photo Taken: From southwest looking northeast		
Description: DU:W44A2G3		

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 19	**Date:** 9/29/2013
Direction Photo Taken: From southwest looking northeast	
Description: DU:W47A2G3	

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 20	**Date:** 9/30/2013
Direction Photo Taken: From southwest corner looking northeast	
Description: DU:W44A2G1	

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 21	**Date:** 9/30/2013
Direction Photo Taken: From northwest looking southeast	
Description: DU:W44A2G1	

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 22	**Date:** 10/01/2013
Direction Photo Taken: From northeast corner looking southwest	
Description: DU:W45A1G1	

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 23	**Date:** 10/01/2013

Direction Photo Taken:
From northeast corner looking southwest

Description:
DU:W46A1G1

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 24	**Date:** 10/01/2013

Direction Photo Taken:
N/A

Description:
DU:W46A1G1
Trash and debris from 1970s-1980s arranged in a shore-like pattern gives appearance that site was submerged at the time (debris line highlighted in blue).

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 25	**Date:** 10/01/2013
Direction Photo Taken: From northeast corner looking southwest	
Description: DU:W48A1G1	

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 26	**Date:** 10/01/2013
Direction Photo Taken: From southeast looking northwest	
Description: DU:W59A1G1	

PHOTOGRAPHIC LOG		
Property Name: Former Camp Maxey		**Location:** Lamar county, Texas
Photo No. 27	**Date:** 10/02/2013	
Direction Photo Taken: From east border looking due west toward Pat Mayse lake.		
Description: DU:E21A3G1		

PHOTOGRAPHIC LOG		
Property Name: Former Camp Maxey		**Location:** Lamar county, Texas
Photo No. 28	**Date:** 10/02/2013	
Direction Photo Taken: From southwest looking northeast.		
Description: DU:W54A3G1		

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 29	**Date:** 10/03/2013

Direction Photo Taken:
From east border looking due west.

Description:
DU:W59A1G2

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 30	**Date:** 10/03/2013

Direction Photo Taken:
From south border looking due north.

Description:
DU:W59A1G3

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 31	**Date:** 10/03/2013
Direction Photo Taken: From south border looking due north.	
Description: DU:W54A3G2	

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 32	**Date:** 10/03/2013
Direction Photo Taken: From southeast looking northwest.	
Description: DU: Historical 2 Historical sites had not been cleared of brush.	

PHOTOGRAPHIC LOG		
Property Name: Former Camp Maxey	**Location:** Lamar county, Texas	
Photo No. **33**	**Date:** 10/03/2013	
Direction Photo Taken: N/A		
Description: DU: Historical 2 Sample collection with Patrick DeCarvalho and UXO technician.		

PHOTOGRAPHIC LOG		
Property Name: Former Camp Maxey	**Location:** Lamar county, Texas	
Photo No. **34**	**Date:** 10/03/2013	
Direction Photo Taken: N/A		
Description: DU: Historical 1		

PHOTOGRAPHIC LOG			
Property Name: Former Camp Maxey		**Location:** Lamar county, Texas	
Photo No. **35**	**Date:** 10/07/2013		
Direction Photo Taken: N/A			
Description: DU: Background 2			

PHOTOGRAPHIC LOG			
Property Name: Former Camp Maxey		**Location:** Lamar county, Texas	
Photo No. **36**	**Date:** 10/07/2013		
Direction Photo Taken: N/A			
Description: DU: Background 3			

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas
Photo No. 37	**Date:** 10/07/2013
Direction Photo Taken: N/A	
Description: DU: Background 4	

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas
Photo No. 38	**Date:** 12/04/2013
Direction Photo Taken: From the southwest corner looking northeast	
Description: DU: W59A1G2	

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No.	**Date:**
39	12/04/2013

Direction Photo Taken:
From Northeast corner looking southwest

Description:
DU: W54A3G1

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No.	**Date:**
40	12/04/2013

Direction Photo Taken:
From southwest corner facing northeast

Description:
DU: W49A2G1

	PHOTOGRAPHIC LOG
Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. **41**	**Date:** 12/05/2013

Direction Photo Taken:
From southwest looking northeast

Description:
DU: W44A2G2

	PHOTOGRAPHIC LOG
Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. **42**	**Date:** 12/05/2013

Direction Photo Taken:
From southwest looking northeast

Description:
DU: W47A2G3
Daniel Heuston carrying decontamination water buckets

	PHOTOGRAPHIC LOG
Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. **43**	**Date:** 12/05/2013

Direction Photo Taken:
From southwest looking northeast

Description:
DU: W44A2G3
Patrick DeCarvalho resting hand auger against tree prior to gathering GPS data.

	PHOTOGRAPHIC LOG
Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. **44**	**Date:** 12/05/2013

Direction Photo Taken:
From southwest looking northeast

Description:
DU: W39A2G2

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. **45** | **Date:** 12/06/2013

Direction Photo Taken:
N/A

Description:
Paris Water Authority: Coordinates for Paris Water Authority taken here

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. **46** | **Date:** 12/06/2013

Direction Photo Taken:
Northwest

Description:
Perimeter fence of Paris Water Authority.

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 47

Date: 12/06/2013

Direction Photo Taken:
Northeast

Description:
Methodist Church camp land: Fence leads to camp leased from federal land. GPS coordinate taken here.

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 48

Date: 12/06/2013

Direction Photo Taken:
NA

Description:
Sanders Cove entrance. Coordinates taken here.

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 49	**Date:** 12/06/2013
Direction Photo Taken: NA	
Description: Sanders Cover Loop A. GPS coordinates taken here. Loops A,B and C are camping grounds and accommodate fishing and swimming.	

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 50	**Date:** 9/27/2013
Direction Photo Taken: N/A	
Description: Sanders Cove Loop B. Coordinates taken here.	

PHOTOGRAPHIC LOG	
Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. **51**	**Date:** 12/06/2013

Direction Photo Taken:
NA

Description:
Sanders Cove Loop C gate closed, coordinates taken here.

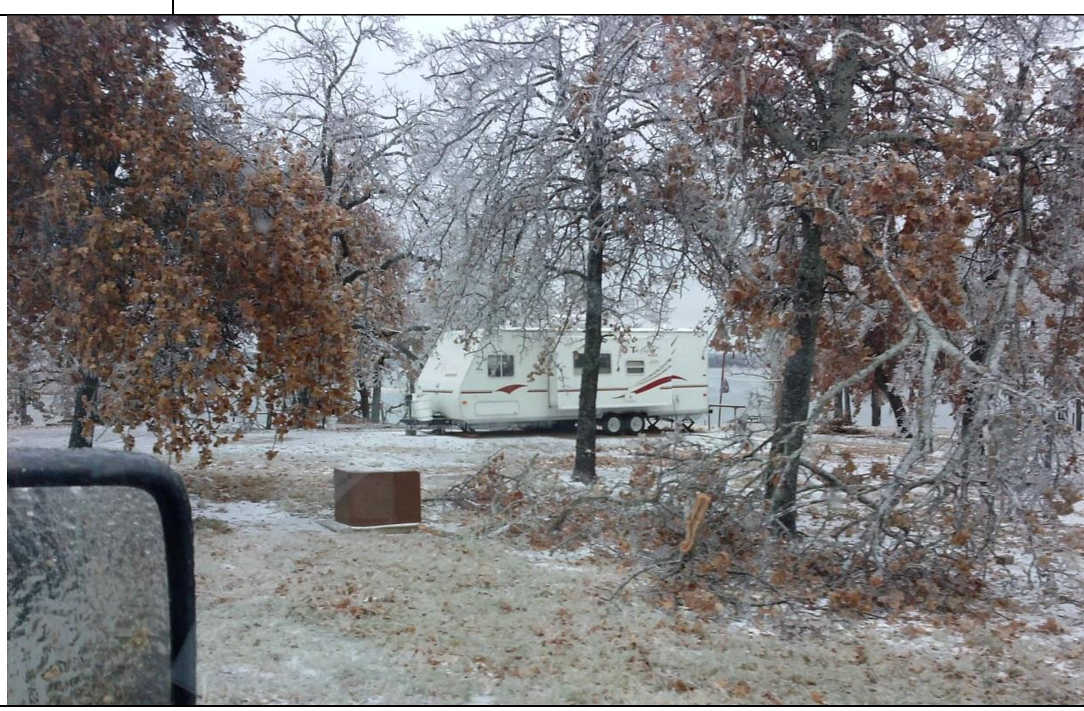
PHOTOGRAPHIC LOG	
Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. **52**	**Date:** 12/06/2013

Direction Photo Taken:
NA

Description:
Pat Mayse Park East: Southwest campground. GPS coordinate taken here.

Park East sites are used for camping, swimming and fishing.



PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas
Photo No. 53	**Date:** 12/06/2013
Direction Photo Taken: NA	
Description: Pat Mayse Park East: Southeast campground. GPS coordinates taken here.	

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas
Photo No. 54	**Date:** 12/06/2013
Direction Photo Taken: NA	
Description: Pat Mayse Park West: Loop A campground. GPS coordinate taken here. A campground with swimming and fishing areas. Loop B and C gates were closed.	

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 55

Date: 12/06/2013

Direction Photo Taken:
South

Description:
Gate to entrance to Camp Kiwanis, private land being leased. GPS coordinate taken here.

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 56

Date: 12/06/2013

Direction Photo Taken:
From southwest looking northeast

Description:
Lamar Point campground. GPS coordinate taken here

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 57	**Date:** 12/07/2013

Direction Photo Taken:
From southwest corner looking northeast

Description:
DU:W40A2G1

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 58	**Date:** 12/07/2013

Direction Photo Taken:
From southwest looking northeast

Description:
DU:W44A2G1

PHOTOGRAPHIC LOG	
Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 59 | **Date:** 12/07/2013

Direction Photo Taken:
From southwest looking northeast

Description:
DU:W38A2G1

PHOTOGRAPHIC LOG	
Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 60 | **Date:** 12/07/2013

Direction Photo Taken:
NA

Description:
DU:W37A2G1
Photo demonstrating extent of ice accumulation on local trees

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 61	**Date:** 12/09/2013
Direction Photo Taken: N/A	
Description: DU:W54A3G2 Debris found in grid, upon examination it was found to be an old animal trap.	

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 62	**Date:** 12/09/2013
Direction Photo Taken: From southwest looking northeast	
Description: DU:W29A2G1	

PHOTOGRAPHIC LOG

Property Name:	**Location:**
Former Camp Maxey	Lamar county, Texas

Photo No. 63	**Date:** 12/09/2013

Direction Photo Taken:
From southwest looking northeast

Description:
DU:W27A2G2

PHOTOGRAPHIC LOG

Property Name:	**Location:**
Former Camp Maxey	Lamar county, Texas

Photo No. 64	**Date:** 12/09/2013

Direction Photo Taken:
From southwest looking northeast

Description:
DU:W27A2G1

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 65	**Date:** 12/09/2013
Direction Photo Taken: From southwest looking northeast	
Description: DU:W27A2G1. Large crater from exploded ordnance. Previously captured in photo from 9/26/2013.	

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 66	**Date:** 12/10/2013
Direction Photo Taken: From east border looking due west.	
Description: DU:W23A2G1	

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 67	**Date:** 12/11/2013

Direction Photo Taken:
From south border looking due north.

Description:
DU:W11A2G1

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 68	**Date:** 12/11/2013

Direction Photo Taken:
From southwest looking northeast

Description:
DU:W9A2G1

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 69	**Date:** 12/11/2013

Direction Photo Taken:
From southeast looking northwest.

Description:
DU: W3A1G1

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 70	**Date:** 12/13/2013

Direction Photo Taken:
From southwest looking northeast

Description:
DU: W31A2G1

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. **71**	**Date:** 12/13/2013

Direction Photo Taken:
N/A

Description:
DU: Background 1

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. **72**	**Date:** 12/13/2013

Direction Photo Taken:
From southwest looking northeast

Description:
DU: Background 5

PHOTOGRAPHIC LOG

Property Name:	**Location:**
Former Camp Maxey	Lamar county, Texas

Photo No.	**Date:**
73	2013

Direction Photo Taken:
N/A

Description:
West Range Area transect marked in preparation for brush cutting.

PHOTOGRAPHIC LOG

Property Name:	**Location:**
Former Camp Maxey	Lamar county, Texas

Photo No.	**Date:**
74	2013

Direction Photo Taken:
N/A

Description:
Brush cutting along a transect in the West Range Area with mechanical equipment.

PHOTOGRAPHIC LOG

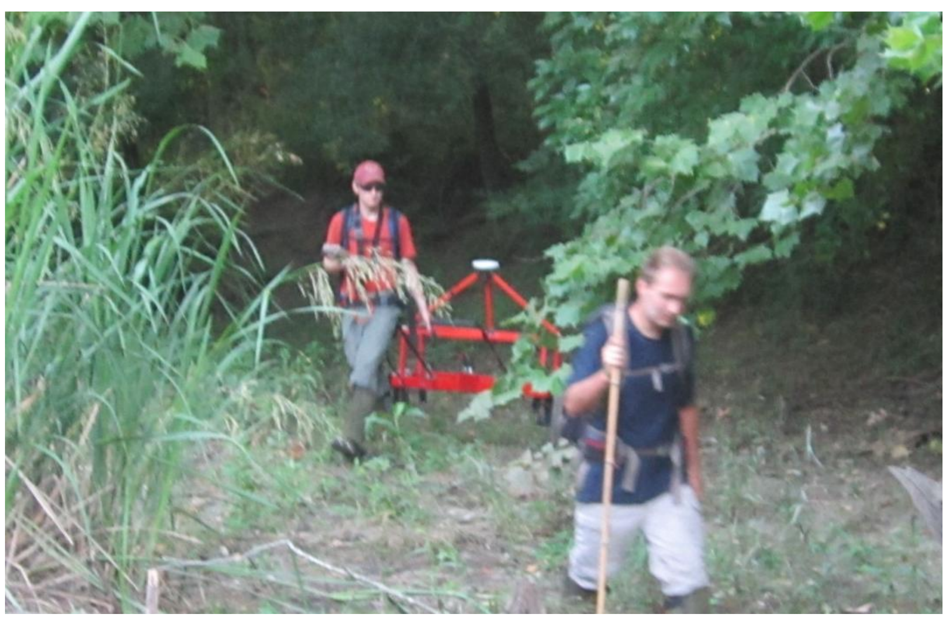
Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. **75**	**Date:** 2013
Direction Photo Taken: N/A	
Description: Geophysicist testing equipment prior to collecting DGM data along transects.	

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. **76**	**Date:** 2013
Direction Photo Taken: N/A	
Description: Geophysical team collects data along a transect.	



PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. **77**	**Date:** 2013
Direction Photo Taken: N/A	
Description: Crew attends the daily safety meeting prior to beginning work.	

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. **78**	**Date:** 2013
Direction Photo Taken: N/A	
Description: UXO team reacquired selected anomaly.	

	PHOTOGRAPHIC LOG
Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 79	**Date:** 2013
Direction Photo Taken: N/A	
Description: UXO Team investigates selected anomalies within grids.	

	PHOTOGRAPHIC LOG
Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 80	**Date:** 2013
Direction Photo Taken: N/A	
Description: Inert grenade fuzes collected on and just below the ground surface along transects through the former grenade training area.	

PHOTOGRAPHIC LOG

Property Name:	Location:
Former Camp Maxey	Lamar county, Texas

Photo No. 81 | **Date:** 2013

Direction Photo Taken:
N/A

Description:
Inert munitions stored prior to transportation to the recycling facility.

PHOTOGRAPHIC LOG

Property Name:	Location:
Former Camp Maxey	Lamar county, Texas

Photo No. 82 | **Date:** 2013

Direction Photo Taken:
N/A

Description:
Technician prepares UXO for demolition.

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 83 | **Date:** 2013

Direction Photo Taken:
N/A

Description:
UXO Technician conducts final inspection of MD.

PHOTOGRAPHIC LOG

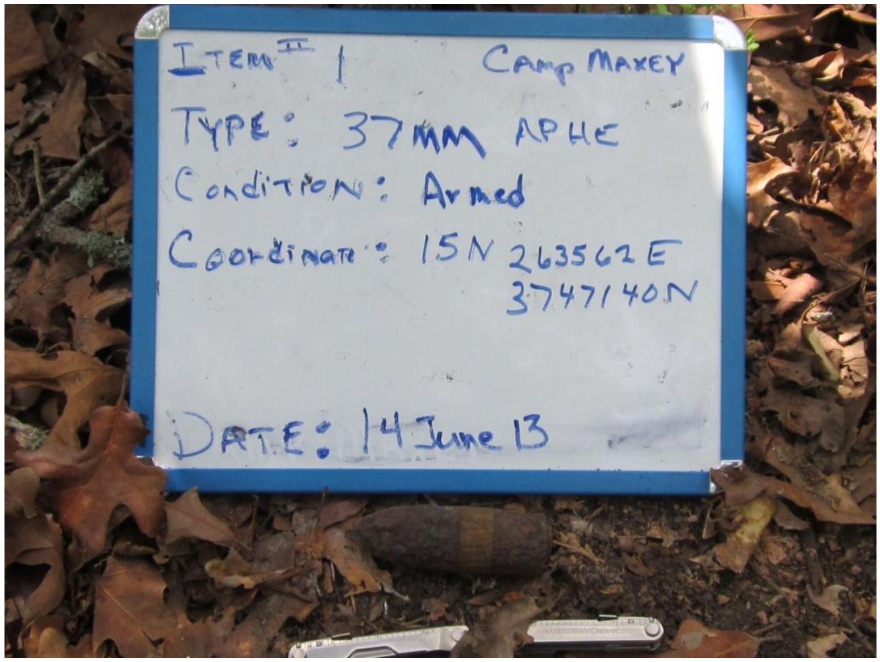
Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 84 | **Date:** 2013

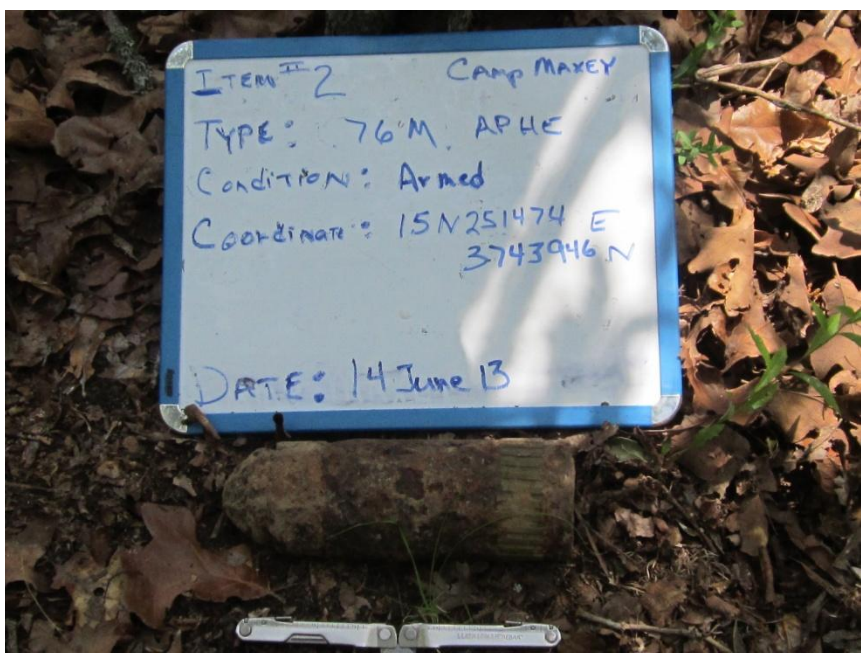
Direction Photo Taken:
N/A

Description:
MD sealed and ready for transport to the recycling facility.

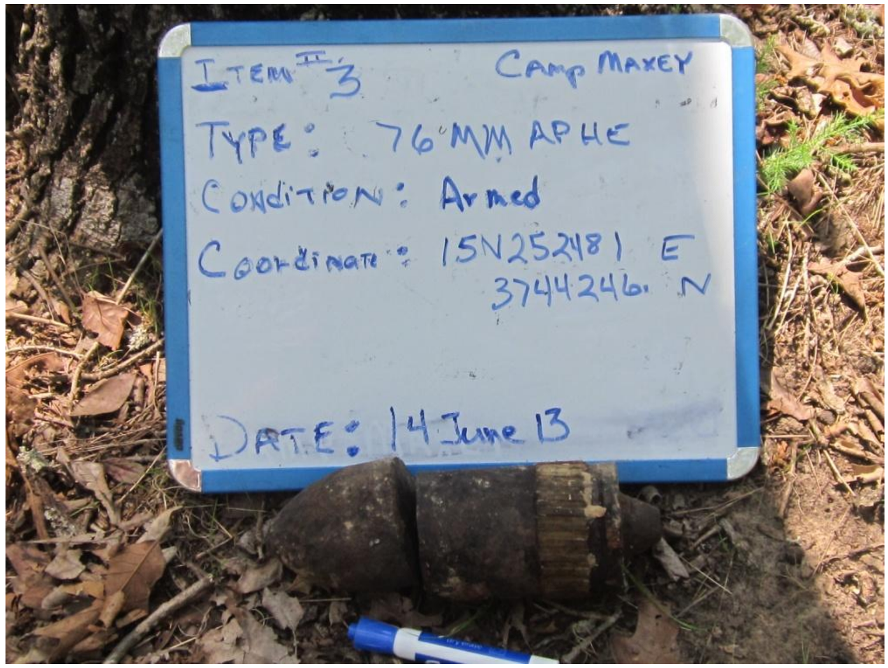
	PHOTOGRAPHIC LOG
Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No.	**Date:**	
85	6/14/2013	
Direction Photo Taken: N/A		
Description: MEC Item #1, identified as 37mm APHE.		

	PHOTOGRAPHIC LOG
Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No.	**Date:**	
86	6/14/2013	
Direction Photo Taken: N/A		
Description: MEC Item #2, identified as 76mm APHE.		

	PHOTOGRAPHIC LOG
Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 87	**Date:** 6/14/2013	
Direction Photo Taken: N/A		
Description: MEC Item #3, identified as 76mm APHE.		

	PHOTOGRAPHIC LOG
Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 88	**Date:** 6/18/2013	
Direction Photo Taken: N/A		
Description: MEC Item #4, identified as 76mm APHE.		

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 89	**Date:** 6/18/2013

Direction Photo Taken:
N/A

Description:
MEC Item #5, identified as 76mm APHE.

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 90	**Date:** 6/18/2013

Direction Photo Taken:
N/A

Description:
MEC Item #6, identified as 76mm APHE.

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 91 | **Date:** 6/28/2013

Direction Photo Taken:
N/A

Description:
MEC Item #7, identified as 76mm APHE.

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 92 | **Date:** 6/28/2013

Direction Photo Taken:
N/A

Description:
MEC Item #8, identified as 76mm APHE.

PHOTOGRAPHIC LOG

Property Name:	**Location:**
Former Camp Maxey	Lamar county, Texas

Photo No.	**Date:**
93	6/28/2013

Direction Photo Taken:
N/A

Description:
MEC Item #9, identified as 2.75in rocket motor with fuze.

PHOTOGRAPHIC LOG

Property Name:	**Location:**
Former Camp Maxey	Lamar county, Texas

Photo No.	**Date:**
94	7/1/2013

Direction Photo Taken:
N/A

Description:
MEC Item #10, identified as 76mm APHE.

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 95	**Date:** 7/1/2013
Direction Photo Taken: N/A	
Description: MEC Item #11, identified as 105mm Smoke Canister.	

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 96	**Date:** 8/8/2013
Direction Photo Taken: N/A	
Description: MEC Item #12, identified as 76mm APHE.	

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No.	**Date:**
97	8/8/2013

Direction Photo Taken:
N/A

Description:
MEC Item #13, identified as a 2.36in Rocket.

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No.	**Date:**
98	8/16/2013

Direction Photo Taken:
N/A

Description:
MEC Item #14, identified as 76mm APHE.

	PHOTOGRAPHIC LOG
Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 99	**Date:** 8/22/2013

Direction Photo Taken:
N/A

Description:
MEC Item #15, identified as 76mm APHE.

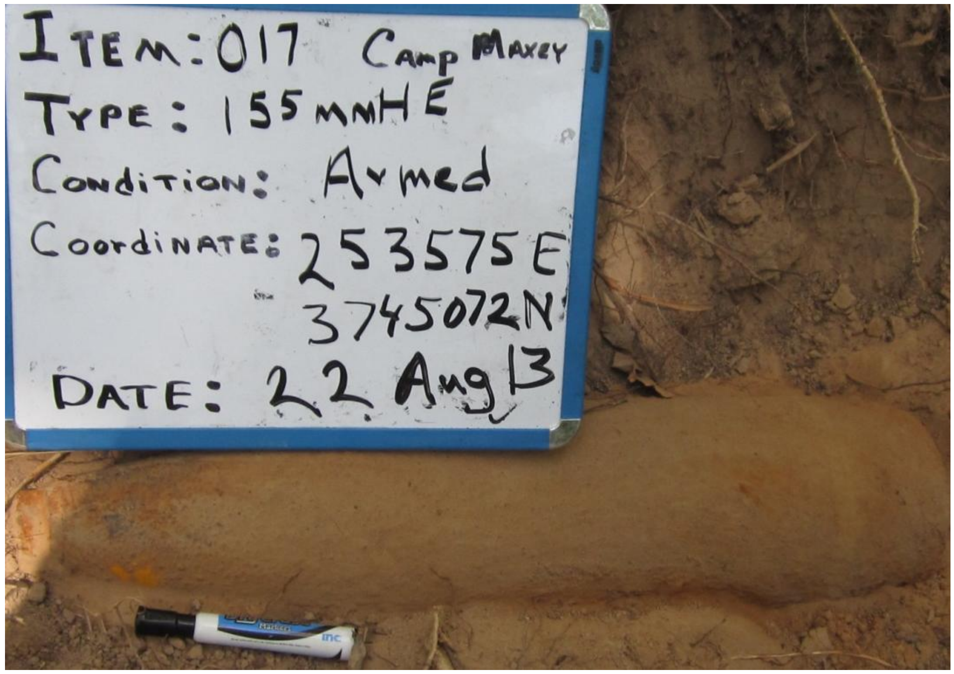
	PHOTOGRAPHIC LOG
Property Name: Former Camp Maxey	**Location:** Lamar county, Texas

Photo No. 100	**Date:** 8/22/2013

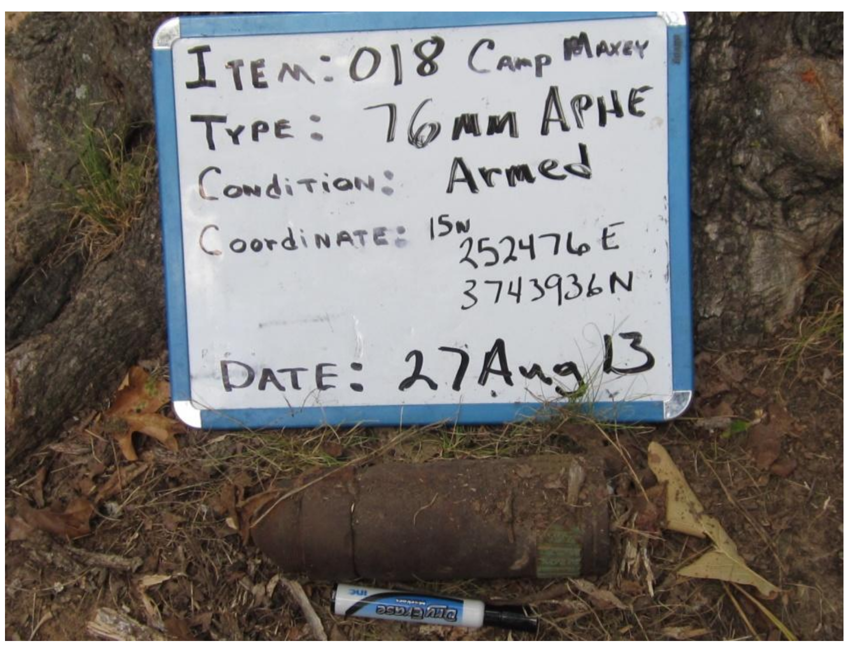
Direction Photo Taken:
N/A

Description:
MEC Item #16, identified as 76mm APHE.

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	Location: Lamar county, Texas
Photo No. 101 / **Date:** 8/22/2013	
Direction Photo Taken: N/A	
Description: MEC Item #17 identified as 155mm HE, located in Grid W27A2G1.	

PHOTOGRAPHIC LOG

Property Name: Former Camp Maxey	Location: Lamar county, Texas
Photo No. 102 / **Date:** 8/27/2013	
Direction Photo Taken: N/A	
Description: MEC Item #18, identified as 76mm APHE.	

APPENDIX E: MUNITIONS AND EXPLOSIVES OF CONCERN HAZARD ASSESSMENT
MILITARY MUNITIONS RESPONSE PROGRAM
REMEDIAL INVESTIGATION/FEASIBILITY STUDY

FORMER CAMP MAXEY
Paris, Texas

MEC HA Summary Information

Comments

Site ID: Eastern Range Area A
Date: 4/7/2014

Please identify the single specific area to be assessed in this hazard assessment. From this point forward, all references to "site" or "MRS" refer to the specific area that you have defined.

A. Enter a unique identifier for the site:

Eastern Range Area A

Provide a list of information sources used for this hazard assessment. As you are completing the worksheets, use the "Select Ref(s)" buttons at the ends of each subsection to select the applicable information sources from the list below.

Ref. No.	Title (include version, publication date)
1	Final RI/FS Report (April 2014)
2	Non-Time Critical Removal Action Report (2010)
3	Report (2007)
4	Investigation, and Removal Report (2002)
5	Removal Action Site Specific Final Report (2001)
6	Engineering Evaluation/Cost Analysis Report (2000)
7	Explosives Sampling Report (1998)
8	Report (1997)
9	Archive Search Report (1994)
10	
11	
12	

B. Briefly describe the site:

1. Area (include units): 1124 acres
2. Past munitions-related use:

Target Area

3. Current land-use activities (list all that occur):

Pat Mayse State Park

4. Are changes to the future land-use planned? No
5. What is the basis for the site boundaries?

FUDSMIS

6. How certain are the site boundaries?

Boundaries are speculative based on historical information.

Reference(s) for Part B:

Final RI/FS Report (April 2014) [redacted]

C. Historical Clearances

1. Have there been any historical clearances at the site? Yes, subsurface clearance
2. If a clearance occurred:
   a. What year was the clearance performed? 1997 and 2010

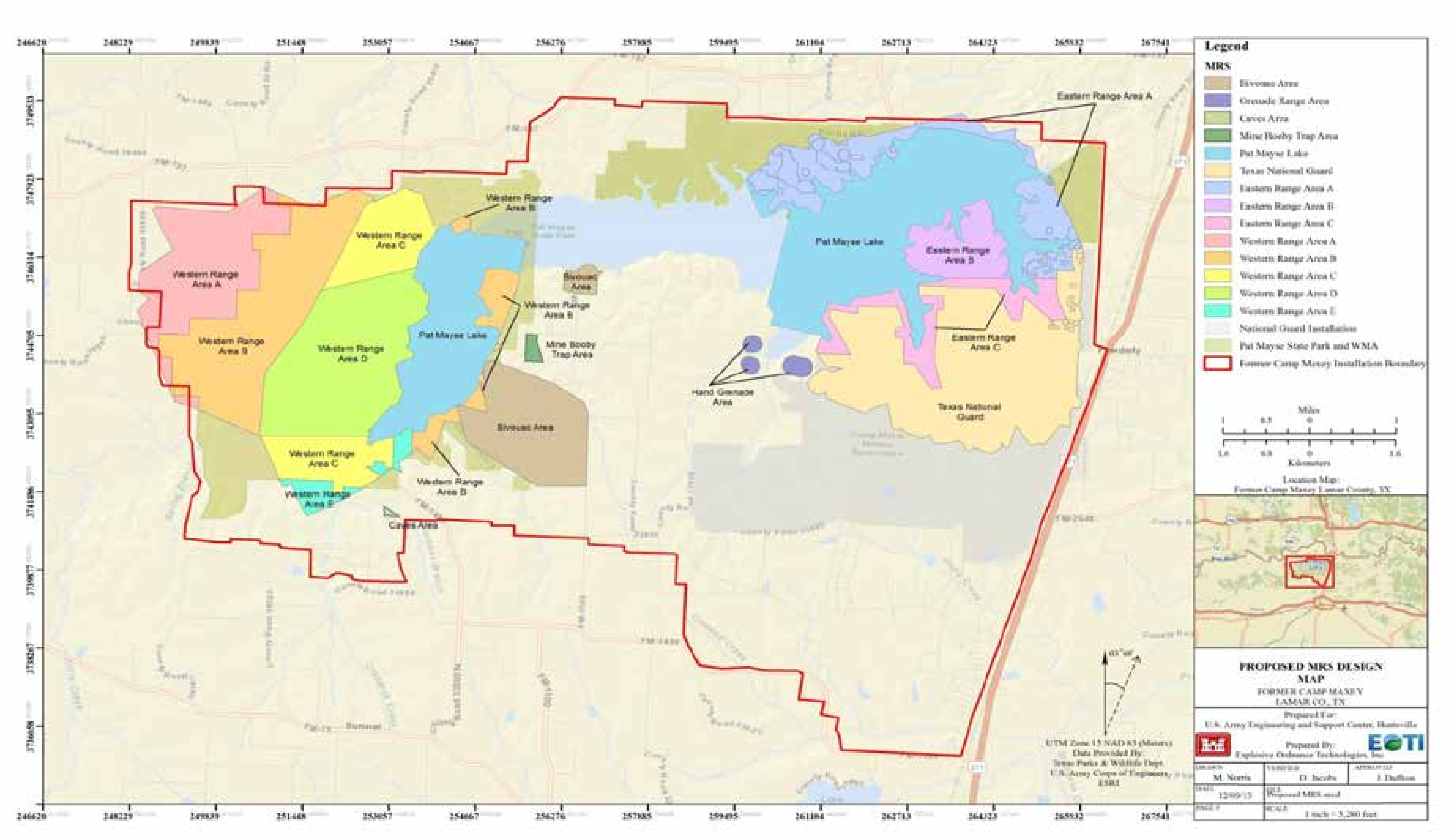
   b. Provide a description of the clearance activity (e.g., extent, depth, amount of munitions-related items removed, types and sizes of removed items, and whether metal detectors were used):

1997: From January 27th through April 10th, 1997, Human Factors Applications, Inc. (HFA) conducted a Time-Critical-Removal-Action (TCRA) on 381 acres in the rocket and grenade impact area (East Impact Area C and Bivouac Area A) on the north shore of Pat Mayse Lakes (Contract No. DACA87-95-D-0027, Task Order 0007). During this effort 2,170 2.36in rockets and 10 M-9 rifle grenades were recovered from the East Range Area.
2010: USAE completed surface clearance of 13 ranges consisting of 1,485 grids/341.5 acres. A total of 170 MEC items, including 2.36-inch rockets, M9 rifle grenades, and MK II hand grenades, were located and disposed of through explosive disposal operations.

Reference(s) for Part C:

Final RI/FS Report (April 2014) [redacted]

D. Attach maps of the site below (select 'Insert/Picture' on the [redacted]



Site ID: **Eastern Range Area A**
Date: **4/7/2014**

Cased Munitions Information

Item No.	Munition Type (e.g., mortar, projectile, etc.)	Munition Size	Munition Size Units	Mark/ Model	Energetic Material Type	Is Munition Fuzed?	Fuzing Type	Fuze Condition	Minimum Depth for Munition (ft)	Location of Munitions	Comments (include rationale for munitions that are "subsurface only")
1	Rockets	2.36	inches	2.36-inch Rockets	High Explosive	UNK	UNK	UNK	0	Surface and Subsurface	Depth of munitions not specified in 2010 report. UXO assumed to have been found on ground surface to remain conservative.
2	Grenades			M9 Rifle Grenades	High Explosive	UNK	UNK	UNK	0	Surface and Subsurface	Depth of munitions not specified in 2010 report. UXO assumed to have been found on ground surface to remain conservative.
3	Grenades			MKII Hand Grenades	High Explosive	UNK	UNK	UNK	0	Surface and Subsurface	Depth of munitions not specified in 2010 report. UXO assumed to have been found on ground surface to remain conservative.
4	Artillery	37	mm	37mm APHE	High Explosive	UNK	UNK	UNK	0.1	Surface and Subsurface	
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Reference(s) for table above:

Final RI/FS Report (April 2014)

[redacted]

Site ID: **Eastern Range Area A**
Date: **4/7/2014**

Activities Currently Occurring at the Site

Activity No.	Activity	Number of people per year who participate in the activity	Number of hours per year a single person spends on the activity	Potential Contact Time (receptor hours/year)	Maximum intrusive depth (ft)	Comments
1	Recreational (i.e., camping, hunting, hiking, lake access)	10,000	16	**160,000**	1	Receptor activity level is speculative but thought to be conservative.
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

Total Potential Contact Time (receptor hrs/yr): **160,000**
Maximum intrusive depth at site (ft): **1**

Reference(s) for table above:

Final RI/FS Report (April 2014)

[redacted]

Site ID: **Eastern Range Area A**
Date: **4/7/2014**

Planned Remedial or Removal Actions

Response Action No.	Response Action Description	Expected Resulting Minimum MEC Depth (ft)	Expected Resulting Site Accessibility	Will land use activities change if this response action is implemented?	What is the expected scope of cleanup?	Comments
1	No DoD Action Indicated	0	Full Accessibility	No	No MEC cleanup	
2	LUCs; 100 Percent Surface Clearance	0.1	Full Accessibility	No	cleanup of MECs located on the surface only	
3	LUCS; Focused Surface and Subsurface Clearance	0.5	Full Accessibility	No	cleanup of MECs located both on the surface and subsurface	
4	Unlimited Use/Access	3	Full Accessibility	No	cleanup of MECs located both on the surface and subsurface	
5						
6						

According to the 'Summary Info' worksheet, no future land uses are planned. For those alternatives where you answered 'No' in Column E, the land use activities will be assessed against current land uses.

Reference(s) for table above:

Final RI/FS Report (April 2014)

Site ID: **Eastern Range Area A**
Date: **4/7/2014**

Energetic Material Type Input Factor Categories

The following table is used to determine scores associated with the energetic materials. Materials are listed in order from most hazardous to least hazardous.

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
High Explosive and Low Explosive Filler in Fragmenting Rounds	100	100	100
White Phosphorus	70	70	70
Pyrotechnic	60	60	60
Propellant	50	50	50
Spotting Charge	40	40	40
Incendiary	30	30	30

The most hazardous type of energetic material listed in the 'Munitions, Bulk Explosive Info' Worksheet falls under the category 'High Explosive and Low Explosive Filler in Fragmenting Rounds'.

	Score
Baseline Conditions:	**100**
Surface Cleanup:	**100**
Subsurface Cleanup:	**100**

Location of Additional Human Receptors Input Factor Categories

1. What is the Explosive Safety Quantity Distance (ESQD) from the Explosive Siting Plan or the Explosive Safety Submission for the MRS? 337 feet

2. Are there currently any features or facilities where people may congregate within the MRS, or within the ESQD arc? Yes

3. Please describe the facility or feature.

WMA buildings

MEC Item(s) used to calculate the ESQD for current use activities

Item #3. Artillery (155mm, High Explosive) [redacted]

The following table is used to determine scores associated with the location of additional human receptors (current use activities):

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Inside the MRS or inside the ESQD arc	30	30	30
Outside of the ESQD arc	0	0	0

4. Current use activities are 'Inside the MRS or inside the ESQD arc', based on Question 2.'

	Score
Baseline Conditions:	**30**
Surface Cleanup:	**30**
Subsurface Cleanup:	**30**

Site Accessibility Input Factor Categories

[redacted]

The following table is used to determine scores associated with site accessibility:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Full Accessibility	No barriers to entry, including signage but no fencing	80	80	80
Moderate Accessibility	Some barriers to entry, such as barbed wire fencing or rough terrain	55	55	55
Limited Accessibility	Significant barriers to entry, such as unguarded chain link fence or requirements for special transportation to reach the site	15	15	15
Very Limited Accessibility	A site with guarded chain link fence or terrain that requires special equipment and skills (e.g., rock climbing) to access	5	5	5

Current Use Activities *Score*

Select the category that best describes the site accessibility under the current use scenario:

Full Accessibility

Baseline Conditions:	**80**
Surface Cleanup:	**80**
Subsurface Cleanup:	**80**

Response Alternative No. 1: No DoD Action Indicated

[redacted]

Based on the 'Planned Remedial or Removal Actions' Worksheet, this alternative will lead to 'Full Accessibility'.

Baseline Conditions:	**80**
Surface Cleanup:	**80**
Subsurface Cleanup:	**80**

Response Alternative No. 2: LUCs; 100 Percent Surface Clearance

Based on the 'Planned Remedial or Removal Actions' Worksheet, this alternative will lead to 'Full Accessibility'.

Baseline Conditions:	**80**
Surface Cleanup:	**80**
Subsurface Cleanup:	**80**

Response Alternative No. 3: LUCS; Focused Surface and Subsurface Clearance

Based on the 'Planned Remedial or Removal Actions' Worksheet, this alternative will lead to 'Full Accessibility'.

Baseline Conditions:	**80**
Surface Cleanup:	**80**
Subsurface Cleanup:	**80**

Response Alternative No. 4: Unlimited Use/Access

Based on the 'Planned Remedial or Removal Actions' Worksheet, this alternative will lead to 'Full Accessibility'.

Baseline Conditions:	**80**
Surface Cleanup:	**80**
Subsurface Cleanup:	**80**

Potential Contact Hours Input Factor Categories

The following table is used to determine scores associated with the total potential contact time:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Many Hours	≥1,000,000 receptor-hrs/yr	120	90	30
Some Hours	100,000 to 999,999 receptor hrs/yr	70	50	20
Few Hours	10,000 to 99,999 receptor-hrs/yr	40	20	10
Very Few Hours	<10,000 receptor-hrs/yr	15	10	5

Current Use Activities:

Input factors are only determined for baseline conditions for current use activities. Based on the 'Current and Future Activities' Worksheet, the Total Potential Contact Time is: **160,000** receptor hrs/yr

Based on the table above, this corresponds to a input factor score for baseline conditions of: **70** Score

Response Alternative No. 1: No DoD Action Indicated

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Total Potential Contact Time, based on the contact time listed for current use activities (see 'Current and Future Activities' Worksheet) **160,000**

Based on the table above, this corresponds to input factor scores of: *Score*

Baseline Conditions: **70**

Surface Cleanup: **50**

Subsurface Cleanup: **20**

Response Alternative No. 2: LUCs; 100 Percent Surface Clearance

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Total Potential Contact Time, based on the contact time listed for current use activities (see 'Current and Future Activities' Worksheet) **160,000**

Based on the table above, this corresponds to input factor scores of: *Score*

Baseline Conditions: **70**

Surface Cleanup: **50**

Subsurface Cleanup: **20**

Response Alternative No. 3: LUCS; Focused Surface and Subsurface

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Total Potential Contact Time, based on the contact time listed for current use activities (see 'Current and Future Activities' Worksheet) **160,000**

Based on the table above, this corresponds to input factor scores of: *Score*

Baseline Conditions: **70**

Surface Cleanup: **50**

Subsurface Cleanup: **20**

Response Alternative No. 4: Unlimited Use/Access

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Total Potential Contact Time, based on the contact time listed for current use activities (see 'Current and Future Activities' Worksheet) **160,000**

Based on the table above, this corresponds to input factor scores of: *Score*

Baseline Conditions: **70**

Surface Cleanup: **50**

Subsurface Cleanup: **20**

Amount of MEC Input Factor Categories

The following table is used to determine scores associated with the Amount of MEC:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Target Area	Areas at which munitions fire was directed	180	120	30
OB/OD Area	Sites where munitions were disposed of by open burn or open detonation methods. This category refers to the core activity area of an OB/OD area. See the "Safety Buffer Areas" category for safety fans and kick-outs.	180	110	30
Function Test Range	Areas where the serviceability of stored munitions or weapons systems are tested. Testing may include components, partial functioning or complete functioning of stockpile or developmental items.	165	90	25
Burial Pit	The location of a burial of large quantities of MEC items.	140	140	10
Maneuver Areas	Areas used for conducting military exercises in a simulated conflict area or war zone	115	15	5
Firing Points	The location from which a projectile, grenade, ground signal, rocket, guided missile, or other device is to be ignited, propelled, or released.	75	10	5
Safety Buffer Areas	Areas outside of target areas, test ranges, or OB/OD areas that were designed to act as a safety zone to contain munitions that do not hit targets or to contain kick-outs from OB/OD areas.	30	10	5
Storage	Any facility used for the storage of military munitions, such as earth-covered magazines, above-ground magazines, and open-air storage areas.	25	10	5
Explosive-Related Industrial Facility	Former munitions manufacturing or demilitarization sites and TNT production plants	20	10	5

Select the category that best describes the ***most hazardous*** amount of MEC: ***Score***

Target Area

Baseline Conditions:	**180**
Surface Cleanup:	**120**
Subsurface Cleanup:	**30**

Minimum MEC Depth Relative to the Maximum Intrusive Depth Input Factor Categories

Current Use Activities

The shallowest minimum MEC depth, based on the 'Cased Munitions Information' Worksheet: **0** ft
The deepest intrusive depth: **1** ft

The table below is used to determine scores associated with the minimum MEC depth relative to the maximum intrusive depth:

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	240	150	95
Baseline Condition: MEC located surface and subsurface, After Cleanup: Intrusive depth does not overlap with subsurface MEC.	240	50	25
Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.	150	N/A	95
Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth does not overlap with minimum MEC depth.	50	N/A	25

Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth will overlap after cleanup. MECs are located at both the surface and subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.' For 'Current Use Activities', only Baseline Conditions are considered. **240** ***Score***

Future Use Activities

Deepest intrusive depth: ft

Not enough information has been entered to determine the input factor category. *Score*

Response Alternative No. 1: No DoD Action Indicated

Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): **0** ft

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Maximum Intrusive Depth, based on the maximum intrusive depth listed for current use activities (see 'Current and Future Activities' Worksheet) **1** ft

Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth overlaps. MECs are located at both the surface and subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.'

	Score
Baseline Conditions:	**240**
Surface Cleanup:	
Subsurface Cleanup:	

Response Alternative No. 2: LUCs; 100 Percent Surface Clearance

Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): **0.1** ft

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Maximum Intrusive Depth, based on the maximum intrusive depth listed for current use activities (see 'Current and Future Activities' Worksheet) **1** ft

Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth overlaps. MECs are located at both the surface and subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.'

	Score
Baseline Conditions:	
Surface Cleanup:	**150**
Subsurface Cleanup:	

Response Alternative No. 3: LUCS; Focused Surface and Subsurface Clearance

Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): **0.5** ft

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Maximum Intrusive Depth, based on the maximum intrusive depth listed for current use activities (see 'Current and Future Activities' Worksheet) **1** ft

Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth overlaps. MECs are located at both the surface and subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.'

	Score
Baseline Conditions:	
Surface Cleanup:	
Subsurface Cleanup:	**95**

Response Alternative No. 4: Unlimited Use/Access

Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): **3** ft

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Maximum Intrusive Depth, based on the maximum intrusive depth listed for current use activities (see 'Current and Future Activities' Worksheet) **1** ft

Because the shallowest minimum MEC depth is greater than the deepest intrusive depth, the intrusive depth does not overlap. MECs are located at both the surface and subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located surface and subsurface, After Cleanup: Intrusive depth does not overlap with subsurface MEC.'

	Score
Baseline Conditions:	
Surface Cleanup:	
Subsurface Cleanup:	**25**

Migration Potential Input Factor Categories

Is there any physical or historical evidence that indicates it is possible for natural physical forces in the area (e.g., frost heave, erosion) to expose subsurface MEC items, or move surface or subsurface MEC items? Yes

If "yes", describe the nature of natural forces. Indicate key areas of potential migration (e.g., overland water flow) on a map as appropriate (attach a map to the bottom of this sheet, or as a separate worksheet).

Erosion

The following table is used to determine scores associated with the migration potential:

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Possible	30	30	10
Unlikely	10	10	10

Based on the question above, migration potential is 'Possible.' *Score*

Baseline Conditions:	**30**
Surface Cleanup:	**30**
Subsurface Cleanup:	**10**

Reference(s) for above information:

Final RI/FS Report (April 2014)

[redacted]

MEC Classification Input Factor Categories

Cased munitions information has been inputed into the 'Munitions, Bulk Explosive Info' Worksheet; therefore, bulk explosives do not comprise all MECs for this MRS.

The 'Amount of MEC' category is 'Target Area'. It cannot be automatically assumed that the MEC items from this category are DMM. Therefore, the conservative assumption is that the MEC items in this MRS are UXO.

Has a technical assessment shown that MEC in the OB/OD Area is DMM?

Are any of the munitions listed in the 'Munitions, Bulk Explosive Info' Worksheet: Yes

- Submunitions
- Rifle-propelled 40mm projectiles (often called 40mm grenades)
- Munitions with white phosphorus filler
- High explosive anti-tank (HEAT) rounds
- Hand grenades
- Fuzes
- Mortars

The following table is used to determine scores associated with MEC classification categories:

UXO Special Case	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
UXO Special Case	180	180	180
UXO	110	110	110
Fuzed DMM Special Case	105	105	105
Fuzed DMM	55	55	55
Unfuzed DMM	45	45	45
Bulk Explosives	45	45	45

Based on your answers above, the MEC classification is 'UXO Special Case'. *Score*

Baseline Conditions:	**180**
Surface Cleanup:	**180**
Subsurface Cleanup:	**180**

MEC Size Input Factor Categories

The following table is used to determine scores associated with MEC Size:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Small	Any munitions (from the 'Munitions, Bulk Explosive Info' Worksheet) weigh less than 90 lbs; small enough for a receptor to be able to move and initiate a detonation	40	40	40
Large	All munitions weigh more than 90 lbs; too large to move without equipment	0	0	0

Based on the definitions above and the types of munitions at the site (see 'Munitions, Bulk Explosive Info' Worksheet), the MEC Size Input Factor is: Small

	Score
Baseline Conditions:	**40**
Surface Cleanup:	**40**
Subsurface Cleanup:	**40**

Scoring Summary

Site ID:	Eastern Range Area A	a. Scoring Summary for Current Use Activities	
Date:	4/7/2014	Response Action Cleanup:	No Response Action
Input Factor		Input Factor Category	Score
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors		Inside the MRS or inside the ESQD arc	30
III. Site Accessibility		Full Accessibility	80
IV. Potential Contact Hours		100,000 to 999,999 receptor hrs/yr	70
V. Amount of MEC		Target Area	180
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth		Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	240
VII. Migration Potential		Possible	30
VIII. MEC Classification		UXO Special Case	180
IX. MEC Size		Small	40
		Total Score	950
		Hazard Level Category	1

Site ID:	Eastern Range Area A	c. Scoring Summary for Response Alternative 1: No DoD Action Indicated	
Date:	4/7/2014	Response Action Cleanup:	No MEC cleanup
Input Factor		Input Factor Category	Score
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors		Inside the MRS or inside the ESQD arc	30
III. Site Accessibility		Full Accessibility	80
IV. Potential Contact Hours		100,000 to 999,999 receptor hrs/yr	70
V. Amount of MEC		Target Area	180
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth		Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	240
VII. Migration Potential		Possible	30
VIII. MEC Classification		UXO Special Case	180
IX. MEC Size		Small	40
		Total Score	950
		Hazard Level Category	1

Site ID:	Eastern Range Area A	d. Scoring Summary for Response Alternative 2: LUCs; 100 Percent Surface Clearance	
Date:	4/7/2014	Response Action Cleanup:	cleanup of MECs located on the surface only
Input Factor		Input Factor Category	Score
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors		Inside the MRS or inside the ESQD arc	30
III. Site Accessibility		Full Accessibility	80
IV. Potential Contact Hours		100,000 to 999,999 receptor hrs/yr	50
V. Amount of MEC		Target Area	120
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth		Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	150
VII. Migration Potential		Possible	30
VIII. MEC Classification		UXO Special Case	180
IX. MEC Size		Small	40
		Total Score	780
		Hazard Level Category	2

Site ID:	Eastern Range Area A	e. Scoring Summary for Response Alternative 3: LUCS; Focused Surface and Subsurface Clearance	
Date:	4/7/2014	Response Action Cleanup:	cleanup of MECs located both on the surface and subsurface
Input Factor		Input Factor Category	Score
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors		Inside the MRS or inside the ESQD arc	30
III. Site Accessibility		Full Accessibility	80
IV. Potential Contact Hours		100,000 to 999,999 receptor hrs/yr	20
V. Amount of MEC		Target Area	30
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth		Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	95
VII. Migration Potential		Possible	10
VIII. MEC Classification		UXO Special Case	180
IX. MEC Size		Small	40
		Total Score	585
		Hazard Level Category	3

Site ID:	Eastern Range Area A	f. Scoring Summary for Response Alternative 4: Unlimited Use/Access	
Date:	4/7/2014	Response Action Cleanup:	cleanup of MECs located both on the surface and subsurface
Input Factor		Input Factor Category	Score
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors		Inside the MRS or inside the ESQD arc	30
III. Site Accessibility		Full Accessibility	80
IV. Potential Contact Hours		100,000 to 999,999 receptor hrs/yr	20
V. Amount of MEC		Target Area	30
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth		Baseline Condition: MEC located surface and subsurface, After Cleanup: Intrusive depth does not overlap with subsurface MEC.	25
VII. Migration Potential		Possible	10
VIII. MEC Classification		UXO Special Case	180
IX. MEC Size		Small	40
		Total Score	515
		Hazard Level Category	4

MEC HA Hazard Level Determination		
Site ID: Eastern Range Area A		
Date: 4/7/2014		
	Hazard Level Category	Score
a. Current Use Activities	1	950
b. Response Alternative 1: No DoD Action Indicated	1	950
c. Response Alternative 2: LUCs; 100 Percent Surface Clearance	2	780
d. Response Alternative 3: LUCS; Focused Surface and Subsurface Clearance	3	585
e. Response Alternative 4: Unlimited Use/Access	4	515
Characteristics of the MRS		
Is critical infrastructure located within the MRS or within the ESQD arc?	Yes	
Are cultural resources located within the MRS or within the ESQD arc?	Yes	
Are significant ecological resources located within the MRS or within the ESQD arc?	Yes	

MEC HA Summary Information

Comments

Site ID: Eastern Range Area B
Date: 4/7/2014

Please identify the single specific area to be assessed in this hazard assessment. From this point forward, all references to "site" or "MRS" refer to the specific area that you have defined.

A. Enter a unique identifier for the site:

Eastern Range Area B

Provide a list of information sources used for this hazard assessment. As you are completing the worksheets, use the "Select Ref(s)" buttons at the ends of each subsection to select the applicable information sources from the list below.

Ref. No.	Title (include version, publication date)
1	Final RI/FS Report (April 2014)
2	Non-Time Critical Removal Action Report (2010)
3	Report (2007)
4	Investigation, and Removal Report (2002)
5	Removal Action Site Specific Final Report (2001)
6	Engineering Evaluation/Cost Analysis Report (2000)
7	Explosives Sampling Report (1998)
8	Report (1997)
9	Archive Search Report (1994)
10	
11	
12	

B. Briefly describe the site:

1. Area (include units): 540 acres
2. Past munitions-related use:
Target Area
3. Current land-use activities (list all that occur):
Public property used for hunting and private campgrounds.
4. Are changes to the future land-use planned? No
5. What is the basis for the site boundaries?
FUDSMIS
6. How certain are the site boundaries?
Boundaries are speculative based on historical information.

Reference(s) for Part B:

Final RI/FS Report (April 2014) [redacted]

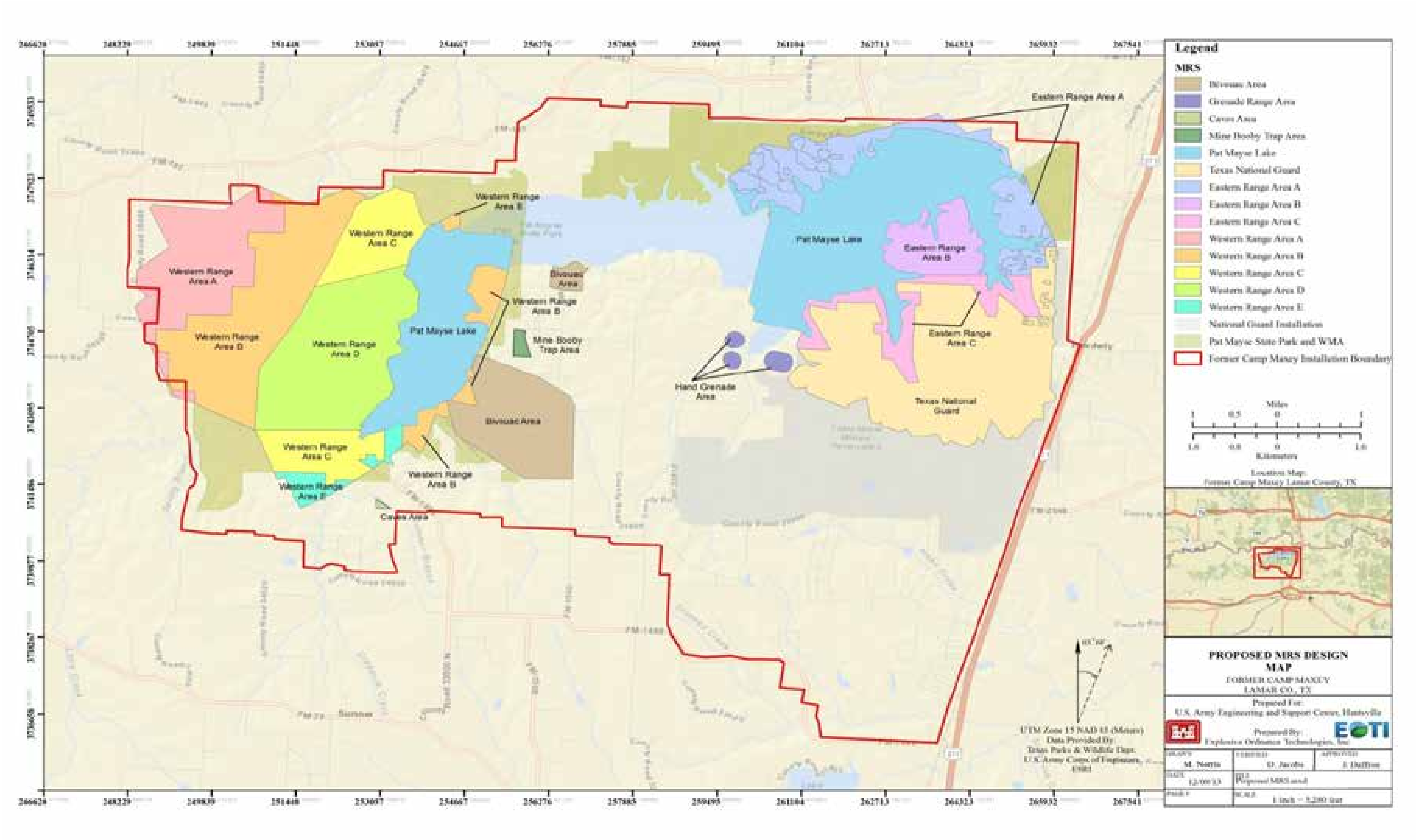
C. Historical Clearances

1. Have there been any historical clearances at the site? Yes, subsurface clearance
2. If a clearance occurred:
   a. What year was the clearance performed? 2001
   b. Provide a description of the clearance activity (e.g., extent, depth, amount of munitions-related items removed, types and sizes of removed items, and whether metal detectors were used):
   41 parcels totaling 243.3 acres were surveyed, geomapped, and cleared; 50 parcels totaling 82.3 acres were surveyed and geo-mapped; and 13 parcels totaling 21.9 acres were surveyed (Contract No. DACA87-97-D-0006, Delivery Order 17). MEC items recovered include: 19 37mm projectiles and 2 75mm.

Reference(s) for Part C:

Final RI/FS Report (April 2014) [redacted]

D. Attach maps of the site below (select 'Insert/Picture' on the menu bar.)



Site ID: **Eastern Range Area B**
Date: **4/7/2014**

Cased Munitions Information

Item No.	Munition Type (e.g., mortar, projectile, etc.)	Munition Size	Munition Size Units	Mark/ Model	Energetic Material Type	Is Munition Fuzed?	Fuzing Type	Fuze Condition	Minimum Depth for Munition (ft)	Location of Munitions	Comments (include rationale for munitions that are "subsurface only")
1	Artillery	37	mm	37mm APHE	High Explosive	UNK	UNK	UNK	0.1	Surface and Subsurface	
2	Artillery	37	mm	37mm HE	High Explosive	UNK	UNK	UNK	0.25	Surface and Subsurface	
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Reference(s) for table above:

Final RI/FS Report (April 2014) [redacted]

Site ID: **Eastern Range Area B**
Date: **4/7/2014**

Activities Currently Occurring at the Site

Activity No.	Activity	Number of people per year who participate in the activity	Number of hours per year a single person spends on the activity	Potential Contact Time (receptor hours/year)	Maximum intrusive depth (ft)	Comments
1	Recreational (i.e., camping, hunting, hiking, lake access)	5,000	16	**80,000**	1	Receptor activity level is speculative but thought to be conservative.
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

Total Potential Contact Time (receptor hrs/yr): **80,000**
Maximum intrusive depth at site (ft): **1**

Reference(s) for table above:

[redacted]

Final RI/FS Report (April 2014)

Site ID: **Eastern Range Area B**
Date: **4/7/2014**

Planned Remedial or Removal Actions

Response Action No.	Response Action Description	Expected Resulting Minimum MEC Depth (ft)	Expected Resulting Site Accessibility	Will land use activities change if this response action is implemented?	What is the expected scope of cleanup?	Comments
1	No DoD Action Indicated	0.1	Moderate Accessibility	No	No MEC cleanup	
2	LUCs, Focused Surface Clearance	0.1	Moderate Accessibility	No	cleanup of MECs located on the surface only	
3	LUCs; 100 Percent Surface and Subsurface Clearance	1	Moderate Accessibility	No	cleanup of MECs located both on the surface and subsurface	
4	Unlimited Use/Access	3	Moderate Accessibility	No	cleanup of MECs located both on the surface and subsurface	
5						
6						

According to the 'Summary Info' worksheet, no future land uses are planned. For those alternatives where you answered 'No' in Column E, the land use activities will be assessed against current land uses.

Reference(s) for table above:

Final RI/FS Report (April 2014)

Site ID: **Eastern Range Area B**

Date: **4/7/2014**

Energetic Material Type Input Factor Categories

Comments

The following table is used to determine scores associated with the energetic materials. Materials are listed in order from most hazardous to least hazardous.

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
High Explosive and Low Explosive Filler in Fragmenting Rounds	100	100	100
White Phosphorus	70	70	70
Pyrotechnic	60	60	60
Propellant	50	50	50
Spotting Charge	40	40	40
Incendiary	30	30	30

The most hazardous type of energetic material listed in the 'Munitions, Bulk Explosive Info' Worksheet falls under the category 'High Explosive and Low Explosive Filler in Fragmenting Rounds'.

Score

Baseline Conditions:	**100**
Surface Cleanup:	**100**
Subsurface Cleanup:	**100**

Location of Additional Human Receptors Input Factor Categories

1. What is the Explosive Safety Quantity Distance (ESQD) from the Explosive Siting Plan or the Explosive Safety Submission for the MRS? 337 feet

2. Are there currently any features or facilities where people may congregate within the MRS, or within the ESQD arc? Yes

3. Please describe the facility or feature.

Building associated with private campgrounds.

MEC Item(s) used to calculate the ESQD for current use activities

Item #3. Artillery (155mm, High Explosive)

The following table is used to determine scores associated with the location of additional human receptors (current use activities):

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Inside the MRS or inside the ESQD arc	30	30	30
Outside of the ESQD arc	0	0	0

4. Current use activities are 'Inside the MRS or inside the ESQD arc', based on Question 2.'

Score

Baseline Conditions:	**30**
Surface Cleanup:	**30**
Subsurface Cleanup:	**30**

Site Accessibility Input Factor Categories

The following table is used to determine scores associated with site accessibility:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Full Accessibility	No barriers to entry, including signage but no fencing	80	80	80
Moderate Accessibility	Some barriers to entry, such as barbed wire fencing or rough terrain	55	55	55
Limited Accessibility	Significant barriers to entry, such as unguarded chain link fence or requirements for special transportation to reach the site	15	15	15
Very Limited Accessibility	A site with guarded chain link fence or terrain that requires special equipment and skills (e.g., rock climbing) to access	5	5	5

Current Use Activities — *Score*

Select the category that best describes the site accessibility under the current use scenario:

Moderate Accessibility

Baseline Conditions:	**55**
Surface Cleanup:	**55**
Subsurface Cleanup:	**55**

Response Alternative No. 1: No DoD Action Indicated

Based on the 'Planned Remedial or Removal Actions' Worksheet, this alternative will lead to 'Moderate Accessibility'.

Baseline Conditions:	**55**
Surface Cleanup:	**55**
Subsurface Cleanup:	**55**

Response Alternative No. 2: LUCs, Focused Surface Clearance

Based on the 'Planned Remedial or Removal Actions' Worksheet, this alternative will lead to 'Moderate Accessibility'.

Baseline Conditions:	**55**
Surface Cleanup:	**55**
Subsurface Cleanup:	**55**

Response Alternative No. 3: LUCs; 100 Percent Surface and Subsurface Clearance

Based on the 'Planned Remedial or Removal Actions' Worksheet, this alternative will lead to 'Moderate Accessibility'.

Baseline Conditions:	**55**
Surface Cleanup:	**55**
Subsurface Cleanup:	**55**

Response Alternative No. 4: Unlimited Use/Access

Based on the 'Planned Remedial or Removal Actions' Worksheet, this alternative will lead to 'Moderate Accessibility'.

Baseline Conditions:	**55**
Surface Cleanup:	**55**
Subsurface Cleanup:	**55**

Potential Contact Hours Input Factor Categories

The following table is used to determine scores associated with the total potential contact time:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Many Hours	≥1,000,000 receptor-hrs/yr	120	90	30
Some Hours	100,000 to 999,999 receptor hrs/yr	70	50	20
Few Hours	10,000 to 99,999 receptor-hrs/yr	40	20	10
Very Few Hours	<10,000 receptor-hrs/yr	15	10	5

Current Use Activities:

Input factors are only determined for baseline conditions for current use activities. Based on the 'Current and Future Activities' Worksheet, the Total Potential Contact Time is: **80,000** receptor hrs/yr

Based on the table above, this corresponds to a input factor score for baseline conditions of: **40** Score

Response Alternative No. 1: No DoD Action Indicated

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Total Potential Contact Time, based on the contact time listed for current use activities (see 'Current and Future Activities' Worksheet) **80,000**

Based on the table above, this corresponds to input factor scores of: *Score*

Baseline Conditions: **40**

Surface Cleanup: **20**

Subsurface Cleanup: **10**

Response Alternative No. 2: LUCs, Focused Surface Clearance

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Total Potential Contact Time, based on the contact time listed for current use activities (see 'Current and Future Activities' Worksheet) **80,000**

Based on the table above, this corresponds to input factor scores of: *Score*

Baseline Conditions: **40**

Surface Cleanup: **20**

Subsurface Cleanup: **10**

Response Alternative No. 3: LUCs; 100 Percent Surface and Subsurface

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Total Potential Contact Time, based on the contact time listed for current use activities (see 'Current and Future Activities' Worksheet) **80,000**

Based on the table above, this corresponds to input factor scores of: *Score*

Baseline Conditions: **40**

Surface Cleanup: **20**

Subsurface Cleanup: **10**

Response Alternative No. 4: Unlimited Use/Access

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Total Potential Contact Time, based on the contact time listed for current use activities (see 'Current and Future Activities' Worksheet) **80,000**

Based on the table above, this corresponds to input factor scores of: *Score*

Baseline Conditions: **40**

Surface Cleanup: **20**

Subsurface Cleanup: **10**

Amount of MEC Input Factor Categories

The following table is used to determine scores associated with the Amount of MEC:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Target Area	Areas at which munitions fire was directed	180	120	30
OB/OD Area	Sites where munitions were disposed of by open burn or open detonation methods. This category refers to the core activity area of an OB/OD area. See the "Safety Buffer Areas" category for safety fans and kick-outs.	180	110	30
Function Test Range	Areas where the serviceability of stored munitions or weapons systems are tested. Testing may include components, partial functioning or complete functioning of stockpile or developmental items.	165	90	25
Burial Pit	The location of a burial of large quantities of MEC items.	140	140	10
Maneuver Areas	Areas used for conducting military exercises in a simulated conflict area or war zone	115	15	5
Firing Points	The location from which a projectile, grenade, ground signal, rocket, guided missile, or other device is to be ignited, propelled, or released.	75	10	5
Safety Buffer Areas	Areas outside of target areas, test ranges, or OB/OD areas that were designed to act as a safety zone to contain munitions that do not hit targets or to contain kick-outs from OB/OD areas.	30	10	5
Storage	Any facility used for the storage of military munitions, such as earth-covered magazines, above-ground magazines, and open-air storage areas.	25	10	5
Explosive-Related Industrial Facility	Former munitions manufacturing or demilitarization sites and TNT production plants	20	10	5

Select the category that best describes the ***most hazardous*** amount of MEC: ***Score***

Target Area

Baseline Conditions:	**180**
Surface Cleanup:	**120**
Subsurface Cleanup:	**30**

Minimum MEC Depth Relative to the Maximum Intrusive Depth Input Factor Categories

Current Use Activities

The shallowest minimum MEC depth, based on the 'Cased Munitions Information' Worksheet: **0.1** ft
The deepest intrusive depth: **1** ft
The table below is used to determine scores associated with the minimum MEC depth relative to the maximum intrusive depth:

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	240	150	95
Baseline Condition: MEC located surface and subsurface, After Cleanup: Intrusive depth does not overlap with subsurface MEC.	240	50	25
Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.	150	N/A	95
Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth does not overlap with minimum MEC depth.	50	N/A	25

Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth will overlap after cleanup. MECs are located only subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.' For 'Current Use Activities', only Baseline Conditions are considered. **150** *Score*

Future Use Activities

Deepest intrusive depth: ft

Not enough information has been entered to determine the input factor category. *Score*

Response Alternative No. 1: No DoD Action Indicated

Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): **0.1** ft

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Maximum Intrusive Depth, based on the maximum intrusive depth listed for current use activities (see 'Current and Future Activities' Worksheet) **1** ft

Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth overlaps. MECs are located only subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.'

	Score
Baseline Conditions:	**150**
Surface Cleanup:	
Subsurface Cleanup:	

Response Alternative No. 2: LUCs, Focused Surface Clearance

Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): **0.1** ft

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Maximum Intrusive Depth, based on the maximum intrusive depth listed for current use activities (see 'Current and Future Activities' Worksheet) **1** ft

Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth overlaps. MECs are located only subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.'

	Score
Baseline Conditions:	
Surface Cleanup:	**N/A**
Subsurface Cleanup:	

Response Alternative No. 3: LUCs; 100 Percent Surface and Subsurface Clearance

Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): **1** ft

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Maximum Intrusive Depth, based on the maximum intrusive depth listed for current use activities (see 'Current and Future Activities' Worksheet) **1** ft

Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth overlaps. MECs are located only subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.'

	Score
Baseline Conditions:	
Surface Cleanup:	
Subsurface Cleanup:	**95**

Response Alternative No. 4: Unlimited Use/Access

Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): **3** ft

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Maximum Intrusive Depth, based on the maximum intrusive depth listed for current use activities (see 'Current and Future Activities' Worksheet) **1** ft

Because the shallowest minimum MEC depth is greater than the deepest intrusive depth, the intrusive depth does not overlap. MECs are located only subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth does not overlap with minimum MEC depth.'

	Score
Baseline Conditions:	
Surface Cleanup:	
Subsurface Cleanup:	**25**

Migration Potential Input Factor Categories

Is there any physical or historical evidence that indicates it is possible for natural physical forces in the area (e.g., frost heave, erosion) to expose subsurface MEC items, or move surface or subsurface MEC items? Yes

If "yes", describe the nature of natural forces. Indicate key areas of potential migration (e.g., overland water flow) on a map as appropriate (attach a map to the bottom of this sheet, or as a separate worksheet).

Erosion

The following table is used to determine scores associated with the migration potential:

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Possible	30	30	10
Unlikely	10	10	10

Based on the question above, migration potential is 'Possible.'

	Score
Baseline Conditions:	**30**
Surface Cleanup:	**30**
Subsurface Cleanup:	**10**

Reference(s) for above information:

[redacted]

MEC Classification Input Factor Categories

Cased munitions information has been inputed into the 'Munitions, Bulk Explosive Info' Worksheet; therefore, bulk explosives do not comprise all MECs for this MRS.

The 'Amount of MEC' category is 'Target Area'. It cannot be automatically assumed that the MEC items from this category are DMM. Therefore, the conservative assumption is that the MEC items in this MRS are UXO.

Has a technical assessment shown that MEC in the OB/OD Area is DMM?

Are any of the munitions listed in the 'Munitions, Bulk Explosive Info' Worksheet: No

- Submunitions
- Rifle-propelled 40mm projectiles (often called 40mm grenades)
- Munitions with white phosphorus filler
- High explosive anti-tank (HEAT) rounds
- Hand grenades
- Fuzes
- Mortars

None of the items listed in the 'Munitions, Bulk Explosive Info' Worksheet were identified as 'fuzed'.

The following table is used to determine scores associated with MEC classification categories:

UXO	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
UXO Special Case	180	180	180
UXO	110	110	110
Fuzed DMM Special Case	105	105	105
Fuzed DMM	55	55	55
Unfuzed DMM	45	45	45
Bulk Explosives	45	45	45

Based on your answers above, the MEC classification is 'UXO'.

	Score
Baseline Conditions:	**110**
Surface Cleanup:	**110**
Subsurface Cleanup:	**110**

MEC Size Input Factor Categories

The following table is used to determine scores associated with MEC Size:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Small	Any munitions (from the 'Munitions, Bulk Explosive Info' Worksheet) weigh less than 90 lbs; small enough for a receptor to be able to move and initiate a detonation	40	40	40
Large	All munitions weigh more than 90 lbs; too large to move without equipment	0	0	0

Based on the definitions above and the types of munitions at the site (see 'Munitions, Bulk Explosive Info' Worksheet), the MEC Size Input Factor is: Small

	Score
Baseline Conditions:	**40**
Surface Cleanup:	**40**
Subsurface Cleanup:	**40**

Scoring Summary

Site ID:	Eastern Range Area B	a. Scoring Summary for Current Use Activities	
Date:	4/7/2014	Response Action Cleanup:	No Response Action
Input Factor		Input Factor Category	Score
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors		Inside the MRS or inside the ESQD arc	30
III. Site Accessibility		Moderate Accessibility	55
IV. Potential Contact Hours		10,000 to 99,999 receptor-hrs/yr	40
V. Amount of MEC		Target Area	180
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth		Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.	150
VII. Migration Potential		Possible	30
VIII. MEC Classification		UXO	110
IX. MEC Size		Small	40
		Total Score	735
		Hazard Level Category	2

Site ID:	Eastern Range Area B	c. Scoring Summary for Response Alternative 1: No DoD Action Indicated	
Date:	4/7/2014	Response Action Cleanup:	No MEC cleanup
Input Factor		Input Factor Category	Score
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors		Inside the MRS or inside the ESQD arc	30
III. Site Accessibility		Moderate Accessibility	55
IV. Potential Contact Hours		10,000 to 99,999 receptor-hrs/yr	40
V. Amount of MEC		Target Area	180
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth		Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.	150
VII. Migration Potential		Possible	30
VIII. MEC Classification		UXO	110
IX. MEC Size		Small	40
		Total Score	735
		Hazard Level Category	2

Site ID:	Eastern Range Area B	d. Scoring Summary for Response Alternative 2: LUCs, Focused Surface Clearance	
Date:	4/7/2014	Response Action Cleanup:	cleanup of MECs located on the surface only
Input Factor		Input Factor Category	Score
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors		Inside the MRS or inside the ESQD arc	30
III. Site Accessibility		Moderate Accessibility	55
IV. Potential Contact Hours		10,000 to 99,999 receptor-hrs/yr	20
V. Amount of MEC		Target Area	120
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth		Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.	N/A
VII. Migration Potential		Possible	30
VIII. MEC Classification		UXO	110
IX. MEC Size		Small	40
		Total Score	505
		Hazard Level Category	4

Site ID:	Eastern Range Area B	e. Scoring Summary for Response Alternative 3: LUCs; 100 Percent Surface and Subsurface Clearance	
Date:	4/7/2014	Response Action Cleanup:	cleanup of MECs located both on the surface and subsurface
Input Factor		Input Factor Category	Score
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors		Inside the MRS or inside the ESQD arc	30
III. Site Accessibility		Moderate Accessibility	55
IV. Potential Contact Hours		10,000 to 99,999 receptor-hrs/yr	10
V. Amount of MEC		Target Area	30
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth		Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.	95
VII. Migration Potential		Possible	10
VIII. MEC Classification		UXO	110
IX. MEC Size		Small	40
		Total Score	480
		Hazard Level Category	4

Site ID:	Eastern Range Area B	f. Scoring Summary for Response Alternative 4: Unlimited Use/Access	
Date:	4/7/2014	Response Action Cleanup:	cleanup of MECs located both on the surface and subsurface
Input Factor		Input Factor Category	Score
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors		Inside the MRS or inside the ESQD arc	30
III. Site Accessibility		Moderate Accessibility	55
IV. Potential Contact Hours		10,000 to 99,999 receptor-hrs/yr	10
V. Amount of MEC		Target Area	30
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth		Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth does not overlap with minimum MEC depth.	25
VII. Migration Potential		Possible	10
VIII. MEC Classification		UXO	110
IX. MEC Size		Small	40
		Total Score	410
		Hazard Level Category	4

MEC HA Hazard Level Determination		
Site ID: Eastern Range Area B		
Date: 4/7/2014		
	Hazard Level Category	Score
a. Current Use Activities	2	735
b. Response Alternative 1: No DoD Action Indicated	2	735
c. Response Alternative 2: LUCs, Focused Surface Clearance	4	505
d. Response Alternative 3: LUCs; 100 Percent Surface and Subsurface Clearance	4	480
e. Response Alternative 4: Unlimited Use/Access	4	410

Characteristics of the MRS	
Is critical infrastructure located within the MRS or within the ESQD arc?	Yes
Are cultural resources located within the MRS or within the ESQD arc?	Yes
Are significant ecological resources located within the MRS or within the ESQD arc?	Yes

MEC HA Summary Information

Comments

Site ID: Eastern Range Area C
Date: 4/7/2014

Please identify the single specific area to be assessed in this hazard assessment. From this point forward, all references to "site" or "MRS" refer to the specific area that you have defined.

A. Enter a unique identifier for the site:

Eastern Range Area B

Provide a list of information sources used for this hazard assessment. As you are completing the worksheets, use the "Select Ref(s)" buttons at the ends of each subsection to select the applicable information sources from the list below.

Ref. No.	Title (include version, publication date)
1	Final RI/FS Report (April 2014)
2	Non-Time Critical Removal Action Report (2010)
3	Report (2007)
4	Investigation, and Removal Report (2002)
5	Removal Action Site Specific Final Report (2001)
6	Engineering Evaluation/Cost Analysis Report (2000)
7	Explosives Sampling Report (1998)
8	Report (1997)
9	Archive Search Report (1994)
10	
11	
12	

B. Briefly describe the site:

1. Area (include units): 563 acres
2. Past munitions-related use:

Target Area

3. Current land-use activities (list all that occur):

Public property used for hunting.

4. Are changes to the future land-use planned? No
5. What is the basis for the site boundaries?

FUDSMIS

6. How certain are the site boundaries?

Boundaries are speculative based on historical information.

Reference(s) for Part B:

Final RI/FS Report (April 2014) [redacted]

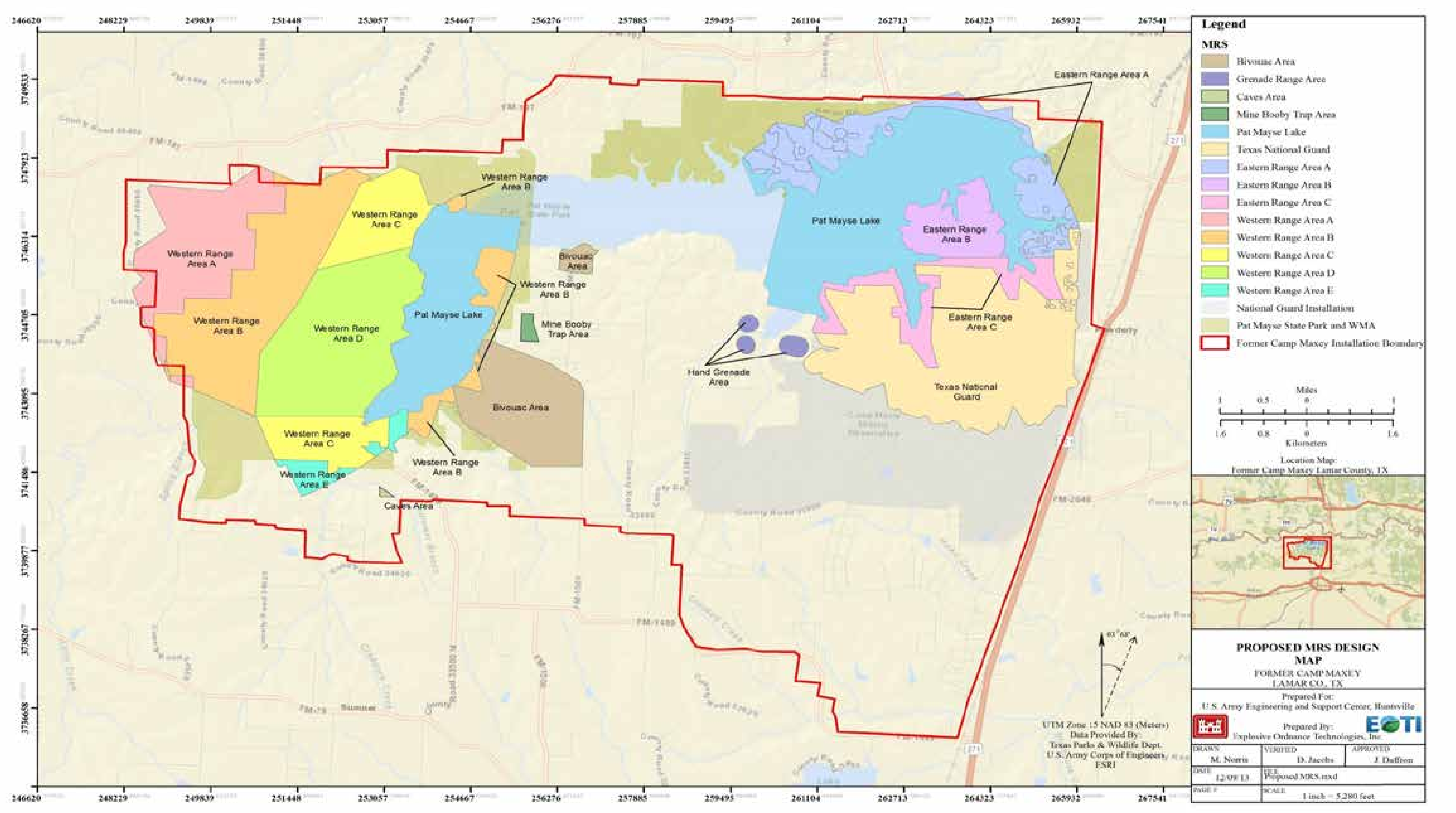
C. Historical Clearances

1. Have there been any historical clearances at the site? No, none
2. If a clearance occurred:
   a. What year was the clearance performed?
   b. Provide a description of the clearance activity (e.g., extent, depth, amount of munitions-related items removed, types and sizes of removed items, and whether metal detectors were used):

Reference(s) for Part C:

Final RI/FS Report (April 2014) [redacted]

D. Attach maps of the site below (select 'Insert/Picture' on the menu bar.)



Site ID: **Eastern Range Area C**
Date: **4/7/2014**

Cased Munitions Information

Item No.	Munition Type (e.g., mortar, projectile, etc.)	Munition Size	Munition Size Units	Mark/ Model	Energetic Material Type	Is Munition Fuzed?	Fuzing Type	Fuze Condition	Minimum Depth for Munition (ft)	Location of Munitions	Comments (include rationale for munitions that are "subsurface only")
1	Artillery	37	mm	37mm APHE	High Explosive	UNK	UNK	UNK	0.33	Surface and Subsurface	
2	Artillery	37	mm	37mm HE	High Explosive	UNK	UNK	UNK	0.1	Surface and Subsurface	
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Reference(s) for table above:

Final RI/FS Report (April 2014) [redacted]

Site ID: **Eastern Range Area C**
Date: **4/7/2014**

Activities Currently Occurring at the Site

Activity No.	Activity	Number of people per year who participate in the activity	Number of hours per year a single person spends on the activity	Potential Contact Time (receptor hours/year)	Maximum intrusive depth (ft)	Comments
1	Recreational (i.e., hunting, hiking, lake access)	1,000	16	**16,000**	1	Receptor activity level is speculative but thought to be conservative.
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

Total Potential Contact Time (receptor hrs/yr): **16,000**
Maximum intrusive depth at site (ft): **1**

Reference(s) for table above:

Final RI/FS Report (April 2014)

[redacted]

Site ID: **Eastern Range Area C**
Date: **4/7/2014**

Planned Remedial or Removal Actions

Response Action No.	Response Action Description	Expected Resulting Minimum MEC Depth (ft)	Expected Resulting Site Accessibility	Will land use activities change if this response action is implemented?	What is the expected scope of cleanup?	Comments
1	No DoD Action Indicated	0.1	Full Accessibility	No	No MEC cleanup	
2	LUCs	0.1	Full Accessibility	No	No MEC cleanup	
3	LUCs; Focused Surface Removal	0.1	Full Accessibility	No	cleanup of MECs located on the surface only	
4	LUCs; 100 Percent Surface Removal	0.5	Full Accessibility	No	cleanup of MECs located on the surface only	
5	Unlimited Use/Access	3	Full Accessibility	No	cleanup of MECs located both on the surface and subsurface	
6						

According to the 'Summary Info' worksheet, no future land uses are planned. For those alternatives where you answered 'No' in Column E, the land use activities will be assessed against current land uses.

Reference(s) for table above:

[redacted]

Final RI/FS Report (April 2014)

Site ID: **Eastern Range Area C**
Date: **4/7/2014**

Energetic Material Type Input Factor Categories

Comments

The following table is used to determine scores associated with the energetic materials. Materials are listed in order from most hazardous to least hazardous.

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
High Explosive and Low Explosive Filler in Fragmenting Rounds	100	100	100
White Phosphorus	70	70	70
Pyrotechnic	60	60	60
Propellant	50	50	50
Spotting Charge	40	40	40
Incendiary	30	30	30

The most hazardous type of energetic material listed in the 'Munitions, Bulk Explosive Info' Worksheet falls under the category 'High Explosive and Low Explosive Filler in Fragmenting Rounds'.

	Score
Baseline Conditions:	**100**
Surface Cleanup:	**100**
Subsurface Cleanup:	**100**

Location of Additional Human Receptors Input Factor Categories

1. What is the Explosive Safety Quantity Distance (ESQD) from the Explosive Siting Plan or the Explosive Safety Submission for the MRS? 337 feet

2. Are there currently any features or facilities where people may congregate within the MRS, or within the ESQD arc? Yes

3. Please describe the facility or feature.

Building associated with private campgrounds.

MEC Item(s) used to calculate the ESQD for current use activities

Item #3. Artillery (155mm, High Explosive)

The following table is used to determine scores associated with the location of additional human receptors (current use activities):

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Inside the MRS or inside the ESQD arc	30	30	30
Outside of the ESQD arc	0	0	0

4. Current use activities are 'Inside the MRS or inside the ESQD arc', based on Question 2.'

	Score
Baseline Conditions:	**30**
Surface Cleanup:	**30**
Subsurface Cleanup:	**30**

Site Accessibility Input Factor Categories

The following table is used to determine scores associated with site accessibility:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Full Accessibility	No barriers to entry, including signage but no fencing	80	80	80
Moderate Accessibility	Some barriers to entry, such as barbed wire fencing or rough terrain	55	55	55
Limited Accessibility	Significant barriers to entry, such as unguarded chain link fence or requirements for special transportation to reach the site	15	15	15
Very Limited Accessibility	A site with guarded chain link fence or terrain that requires special equipment and skills (e.g., rock climbing) to access	5	5	5

Current Use Activities

Score

Select the category that best describes the site accessibility under the current use scenario:

Full Accessibility

Baseline Conditions:	**80**
Surface Cleanup:	**80**
Subsurface Cleanup:	**80**

Response Alternative No. 1: No DoD Action Indicated

Based on the 'Planned Remedial or Removal Actions' Worksheet, this alternative will lead to 'Full Accessibility'.

Baseline Conditions:	**80**
Surface Cleanup:	**80**
Subsurface Cleanup:	**80**

Response Alternative No. 2: LUCs

Based on the 'Planned Remedial or Removal Actions' Worksheet, this alternative will lead to 'Full Accessibility'.

Baseline Conditions:	**80**
Surface Cleanup:	**80**
Subsurface Cleanup:	**80**

Response Alternative No. 3: LUCs; Focused Surface Removal

Based on the 'Planned Remedial or Removal Actions' Worksheet, this alternative will lead to 'Full Accessibility'.

Baseline Conditions:	**80**
Surface Cleanup:	**80**
Subsurface Cleanup:	**80**

Response Alternative No. 4: LUCs; 100 Percent Surface Removal

Based on the 'Planned Remedial or Removal Actions' Worksheet, this alternative will lead to 'Full Accessibility'.

Baseline Conditions:	**80**
Surface Cleanup:	**80**
Subsurface Cleanup:	**80**

Potential Contact Hours Input Factor Categories

The following table is used to determine scores associated with the total potential contact time:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Many Hours	≥1,000,000 receptor-hrs/yr	120	90	30
Some Hours	100,000 to 999,999 receptor hrs/yr	70	50	20
Few Hours	10,000 to 99,999 receptor-hrs/yr	40	20	10
Very Few Hours	<10,000 receptor-hrs/yr	15	10	5

Current Use Activities :

Input factors are only determined for baseline conditions for current use activities. Based on the 'Current and Future Activities' Worksheet, the Total Potential Contact Time is: **16,000** receptor hrs/yr
Based on the table above, this corresponds to a input factor score for baseline conditions of: **40** Score

Response Alternative No. 1: No DoD Action Indicated

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.
Total Potential Contact Time, based on the contact time listed for current use activities (see 'Current and Future Activities' Worksheet) **16,000**
Based on the table above, this corresponds to input factor scores of: *Score*
Baseline Conditions: **40**
Surface Cleanup: **20**
Subsurface Cleanup: **10**

Response Alternative No. 2: LUCs

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.
Total Potential Contact Time, based on the contact time listed for current use activities (see 'Current and Future Activities' Worksheet) **16,000**
Based on the table above, this corresponds to input factor scores of: *Score*
Baseline Conditions: **40**
Surface Cleanup: **20**
Subsurface Cleanup: **10**

Response Alternative No. 3: LUCs; Focused Surface Removal

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.
Total Potential Contact Time, based on the contact time listed for current use activities (see 'Current and Future Activities' Worksheet) **16,000**
Based on the table above, this corresponds to input factor scores of: *Score*
Baseline Conditions: **40**
Surface Cleanup: **20**
Subsurface Cleanup: **10**

Response Alternative No. 4: LUCs; 100 Percent Surface Removal

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.
Total Potential Contact Time, based on the contact time listed for current use activities (see 'Current and Future Activities' Worksheet) **16,000**
Based on the table above, this corresponds to input factor scores of: *Score*
Baseline Conditions: **40**
Surface Cleanup: **20**
Subsurface Cleanup: **10**

Amount of MEC Input Factor Categories

The following table is used to determine scores associated with the Amount of MEC:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Target Area	Areas at which munitions fire was directed	180	120	30
OB/OD Area	Sites where munitions were disposed of by open burn or open detonation methods. This category refers to the core activity area of an OB/OD area. See the "Safety Buffer Areas" category for safety fans and kick-outs.	180	110	30
Function Test Range	Areas where the serviceability of stored munitions or weapons systems are tested. Testing may include components, partial functioning or complete functioning of stockpile or developmental items.	165	90	25
Burial Pit	The location of a burial of large quantities of MEC items.	140	140	10
Maneuver Areas	Areas used for conducting military exercises in a simulated conflict area or war zone	115	15	5
Firing Points	The location from which a projectile, grenade, ground signal, rocket, guided missile, or other device is to be ignited, propelled, or released.	75	10	5
Safety Buffer Areas	Areas outside of target areas, test ranges, or OB/OD areas that were designed to act as a safety zone to contain munitions that do not hit targets or to contain kick-outs from OB/OD areas.	30	10	5
Storage	Any facility used for the storage of military munitions, such as earth-covered magazines, above-ground magazines, and open-air storage areas.	25	10	5
Explosive-Related Industrial Facility	Former munitions manufacturing or demilitarization sites and TNT production plants	20	10	5

Select the category that best describes the ***most hazardous*** amount of MEC: ***Score***

Target Area

Baseline Conditions:	**180**
Surface Cleanup:	**120**
Subsurface Cleanup:	**30**

Minimum MEC Depth Relative to the Maximum Intrusive Depth Input Factor Categories

Current Use Activities

The shallowest minimum MEC depth, based on the 'Cased Munitions Information' Worksheet: **0.1** ft
The deepest intrusive depth: **1** ft
The table below is used to determine scores associated with the minimum MEC depth relative to the maximum intrusive depth:

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	240	150	95
Baseline Condition: MEC located surface and subsurface, After Cleanup: Intrusive depth does not overlap with subsurface MEC.	240	50	25
Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.	150	N/A	95
Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth does not overlap with minimum MEC depth.	50	N/A	25

Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth will overlap after cleanup. MECs are located only subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.' For 'Current Use Activities', only Baseline Conditions are considered. **150** ***Score***

Future Use Activities

Deepest intrusive depth: ft

Not enough information has been entered to determine the input factor category. ***Score***

Response Alternative No. 1: No DoD Action Indicated

Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): **0.1** ft

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Maximum Intrusive Depth, based on the maximum intrusive depth listed for current use activities (see 'Current and Future Activities' Worksheet) **1** ft

Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth overlaps. MECs are located only subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.'

	Score
Baseline Conditions:	**150**
Surface Cleanup:	
Subsurface Cleanup:	

Response Alternative No. 2: LUCs

Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): **0.1** ft

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Maximum Intrusive Depth, based on the maximum intrusive depth listed for current use activities (see 'Current and Future Activities' Worksheet) **1** ft

Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth overlaps. MECs are located only subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.'

	Score
Baseline Conditions:	**150**
Surface Cleanup:	
Subsurface Cleanup:	

Response Alternative No. 3: LUCs; Focused Surface Removal

Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): **0.1** ft

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Maximum Intrusive Depth, based on the maximum intrusive depth listed for current use activities (see 'Current and Future Activities' Worksheet) **1** ft

Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth overlaps. MECs are located only subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.'

	Score
Baseline Conditions:	
Surface Cleanup:	**N/A**
Subsurface Cleanup:	

Response Alternative No. 4: LUCs; 100 Percent Surface Removal

Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): **0.5** ft

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Maximum Intrusive Depth, based on the maximum intrusive depth listed for current use activities (see 'Current and Future Activities' Worksheet) **1** ft

Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth overlaps. MECs are located only subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.'

	Score
Baseline Conditions:	
Surface Cleanup:	**N/A**
Subsurface Cleanup:	

Migration Potential Input Factor Categories

Is there any physical or historical evidence that indicates it is possible for natural physical forces in the area (e.g., frost heave, erosion) to expose subsurface MEC items, or move surface or subsurface MEC items?

Yes

If "yes", describe the nature of natural forces. Indicate key areas of potential migration (e.g., overland water flow) on a map as appropriate (attach a map to the bottom of this sheet, or as a separate worksheet).

Erosion

The following table is used to determine scores associated with the migration potential:

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Possible	30	30	10
Unlikely	10	10	10

Based on the question above, migration potential is 'Possible.'

	Score
Baseline Conditions:	**30**
Surface Cleanup:	**30**
Subsurface Cleanup:	**10**

Reference(s) for above information:

Draft Final RI/FS Report (February 2014) [redacted]

MEC Classification Input Factor Categories

Cased munitions information has been inputed into the 'Munitions, Bulk Explosive Info' Worksheet; therefore, bulk explosives do not comprise all MECs for this MRS.

The 'Amount of MEC' category is 'Target Area'. It cannot be automatically assumed that the MEC items from this category are DMM. Therefore, the conservative assumption is that the MEC items in this MRS are UXO.

Has a technical assessment shown that MEC in the OB/OD Area is DMM?

Are any of the munitions listed in the 'Munitions, Bulk Explosive Info' Worksheet: No

- Submunitions
- Rifle-propelled 40mm projectiles (often called 40mm grenades)
- Munitions with white phosphorus filler
- High explosive anti-tank (HEAT) rounds
- Hand grenades
- Fuzes
- Mortars

None of the items listed in the 'Munitions, Bulk Explosive Info' Worksheet were identified as 'fuzed'.

The following table is used to determine scores associated with MEC classification categories:

UXO	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
UXO Special Case	180	180	180
UXO	110	110	110
Fuzed DMM Special Case	105	105	105
Fuzed DMM	55	55	55
Unfuzed DMM	45	45	45
Bulk Explosives	45	45	45

Based on your answers above, the MEC classification is 'UXO'.

	Score
Baseline Conditions:	**110**
Surface Cleanup:	**110**
Subsurface Cleanup:	**110**

MEC Size Input Factor Categories

The following table is used to determine scores associated with MEC Size:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Small	Any munitions (from the 'Munitions, Bulk Explosive Info' Worksheet) weigh less than 90 lbs; small enough for a receptor to be able to move and initiate a detonation	40	40	40
Large	All munitions weigh more than 90 lbs; too large to move without equipment	0	0	0

Based on the definitions above and the types of munitions at the site (see 'Munitions, Bulk Explosive Info' Worksheet), the MEC Size Input Factor is: Small

	Score
Baseline Conditions:	**40**
Surface Cleanup:	**40**
Subsurface Cleanup:	**40**

Scoring Summary

Site ID:	Eastern Range Area C	a. Scoring Summary for Current Use Activities	
Date:	4/7/2014	Response Action Cleanup:	No Response Action
Input Factor		Input Factor Category	Score
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors		Inside the MRS or inside the ESQD arc	30
III. Site Accessibility		Full Accessibility	80
IV. Potential Contact Hours		10,000 to 99,999 receptor-hrs/yr	40
V. Amount of MEC		Target Area	180
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth		Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.	150
VII. Migration Potential		Possible	30
VIII. MEC Classification		UXO	110
IX. MEC Size		Small	40
		Total Score	760
		Hazard Level Category	2

Site ID:	Eastern Range Area C	c. Scoring Summary for Response Alternative 1: No DoD Action Indicated	
Date:	4/7/2014	Response Action Cleanup:	No MEC cleanup
Input Factor		Input Factor Category	Score
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors		Inside the MRS or inside the ESQD arc	30
III. Site Accessibility		Full Accessibility	80
IV. Potential Contact Hours		10,000 to 99,999 receptor-hrs/yr	40
V. Amount of MEC		Target Area	180
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth		Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.	150
VII. Migration Potential		Possible	30
VIII. MEC Classification		UXO	110
IX. MEC Size		Small	40
		Total Score	760
		Hazard Level Category	2

Site ID:	Eastern Range Area C	d. Scoring Summary for Response Alternative 2: LUCs	
Date:	4/7/2014	Response Action Cleanup:	No MEC cleanup
Input Factor		Input Factor Category	Score
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors		Inside the MRS or inside the ESQD arc	30
III. Site Accessibility		Full Accessibility	80
IV. Potential Contact Hours		10,000 to 99,999 receptor-hrs/yr	40
V. Amount of MEC		Target Area	180
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth		Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.	150
VII. Migration Potential		Possible	30
VIII. MEC Classification		UXO	110
IX. MEC Size		Small	40
		Total Score	760
		Hazard Level Category	2

Site ID:	Eastern Range Area C	e. Scoring Summary for Response Alternative 3: LUCs; Focused Surface Removal	
Date:	4/7/2014	Response Action Cleanup:	cleanup of MECs located on the surface only
Input Factor		Input Factor Category	Score
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors		Inside the MRS or inside the ESQD arc	30
III. Site Accessibility		Full Accessibility	80
IV. Potential Contact Hours		10,000 to 99,999 receptor-hrs/yr	20
V. Amount of MEC		Target Area	120
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth		Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.	N/A
VII. Migration Potential		Possible	30
VIII. MEC Classification		UXO	110
IX. MEC Size		Small	40
		Total Score	530
		Hazard Level Category	3

Site ID:	Eastern Range Area C	f. Scoring Summary for Response Alternative 4: LUCs; 100 Percent Surface Removal	
Date:	4/7/2014	Response Action Cleanup:	cleanup of MECs located on the surface only
Input Factor		Input Factor Category	Score
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors		Inside the MRS or inside the ESQD arc	30
III. Site Accessibility		Full Accessibility	80
IV. Potential Contact Hours		10,000 to 99,999 receptor-hrs/yr	20
V. Amount of MEC		Target Area	120
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth		Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.	N/A
VII. Migration Potential		Possible	30
VIII. MEC Classification		UXO	110
IX. MEC Size		Small	40
		Total Score	530
		Hazard Level Category	3

Site ID:	Eastern Range Area C	g. Scoring Summary for Response Alternative 5: Unlimited Use/Access	
Date:	4/7/2014	Response Action Cleanup:	cleanup of MECs located both on the surface and subsurface
Input Factor		Input Factor Category	Score
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors		Inside the MRS or inside the ESQD arc	30
III. Site Accessibility		Full Accessibility	80
IV. Potential Contact Hours		10,000 to 99,999 receptor-hrs/yr	10
V. Amount of MEC		Target Area	30
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth		Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth does not overlap with minimum MEC depth.	25
VII. Migration Potential		Possible	10
VIII. MEC Classification		UXO	110
IX. MEC Size		Small	40
		Total Score	435
		Hazard Level Category	4

MEC HA Hazard Level Determination		
Site ID: Eastern Range Area C		
Date: 4/7/2014		
	Hazard Level Category	Score
a. Current Use Activities	2	760
c. Response Alternative 1: No DoD Action Indicated	2	760
d. Response Alternative 2: LUCs	2	760
e. Response Alternative 3: LUCs; Focused Surface Removal	3	530
f. Response Alternative 4: LUCs; 100 Percent Surface Removal	3	530
g. Response Alternative 5: Unlimited Use/Access	4	435

Characteristics of the MRS	
Is critical infrastructure located within the MRS or within the ESQD arc?	Yes
Are cultural resources located within the MRS or within the ESQD arc?	Yes
Are significant ecological resources located within the MRS or within the ESQD arc?	Yes

MEC HA Summary Information

Comments

Site ID: Western Range Area D
Date: 4/7/2014

Please identify the single specific area to be assessed in this hazard assessment. From this point forward, all references to "site" or "MRS" refer to the specific area that you have defined.

A. Enter a unique identifier for the site:

Western Range Area D

Provide a list of information sources used for this hazard assessment. As you are completing the worksheets, use the "Select Ref(s)" buttons at the ends of each subsection to select the applicable information sources from the list below.

Ref. No.	Title (include version, publication date)
1	Final RI/FS Report (April 2014)
2	Non-Time Critical Removal Action Report (2010)
3	Report (2007)
4	Investigation, and Removal Report (2002)
5	Removal Action Site Specific Final Report (2001)
6	Engineering Evaluation/Cost Analysis Report (2000)
7	Explosives Sampling Report (1998)
8	Report (1997)
9	Archive Search Report (1994)
10	
11	
12	

B. Briefly describe the site:

1. Area (include units): 1870 acres
2. Past munitions-related use:

Target Area

3. Current land-use activities (list all that occur):

Pat Mayse WMA

4. Are changes to the future land-use planned? No
5. What is the basis for the site boundaries?

FUDSMIS

6. How certain are the site boundaries?

Boundaries are speculative based on historical information.

Reference(s) for Part B:

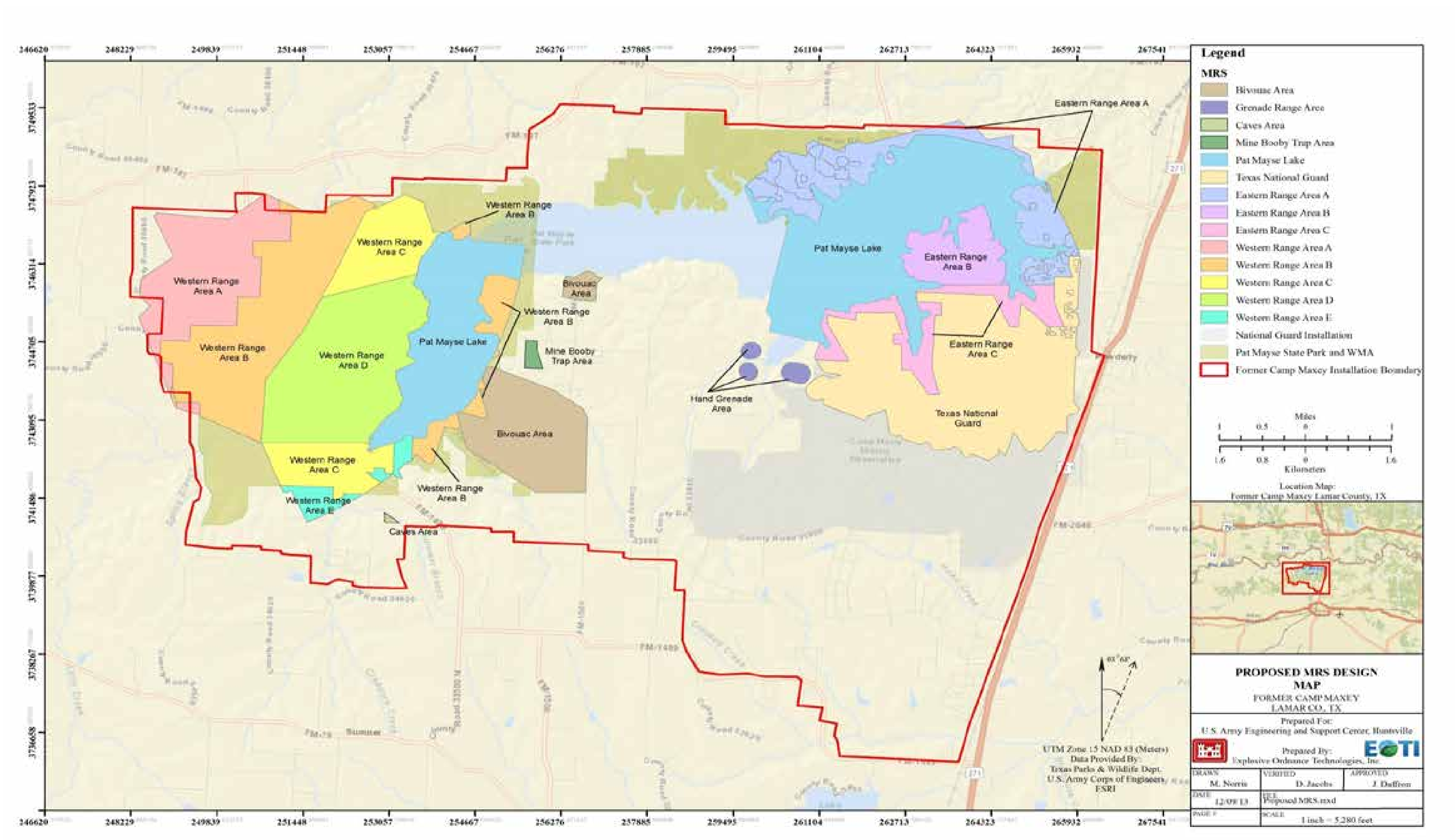
Final RI/FS Report (April 2014) [redacted]

C. Historical Clearances

1. Have there been any historical clearances at the site? No, none

Final RI/FS Report (April 2014) [redacted]

D. Attach maps of the site below (select 'Insert/Picture' on the menu bar.)



Site ID: **Western Range Area D**
Date: **4/7/2014**

Cased Munitions Information

Item No.	Munition Type (e.g., mortar, projectile, etc.)	Munition Size	Munition Size Units	Mark/ Model	Energetic Material Type	Is Munition Fuzed?	Fuzing Type	Fuze Condition	Minimum Depth for Munition (ft)	Location of Munitions	Comments (include rationale for munitions that are "subsurface only")
1	Artillery	76	mm	76 mm APHE	High Explosive	UNK	UNK	UNK	0	Surface and Subsurface	Found on transect during geophysical operations and at depths of 8 and 12 inches.
2	Artillery	155	mm	155mm HE	High Explosive	UNK	UNK	UNK	0.33	Surface and Subsurface	
3	Pyrotechnic	105	mm	105mm Smoke Canister	Pyrotechnic	UNK	UNK	UNK	0	Surface and Subsurface	Found on transect during geophysical operations.
4	Rockets	2.36	inches	2.36-inch Rocket Motor with Fuze	High Explosive	Yes	UNK	UNK	0	Surface and Subsurface	Found on transect during geophysical operations.
5											
6											
7											
8											
9											
10											
11											
12											
13											

Reference(s) for table above:

Final RI/FS Report (April 2014) [redacted]

Site ID: **Western Range Area D**
Date: **4/7/2014**

Activities Currently Occurring at the Site

Activity No.	Activity	Number of people per year who participate in the activity	Number of hours per year a single person spends on the activity	Potential Contact Time (receptor hours/year)	Maximum intrusive depth (ft)	Comments
1	Recreational (i.e., hunting, hiking, lake access)	4,000	16	**64,000**	1	Receptor activity level is speculative but thought to be conservative.
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

Total Potential Contact Time (receptor hrs/yr): **64,000**
Maximum intrusive depth at site (ft): **1**

Reference(s) for table above:

Final RI/FS Report (April 2014)

[redacted]

Site ID: **Western Range Area D**
Date: **4/7/2014**

Planned Remedial or Removal Actions

Response Action No.	Response Action Description	Expected Resulting Minimum MEC Depth (ft)	Expected Resulting Site Accessibility	Will land use activities change if this response action is implemented?	What is the expected scope of cleanup?	Comments
1	No DoD Action Indicated	0	Full Accessibility	No	No MEC cleanup	
2	LUCs; 100 Percent Surface Clearance	0.33	Full Accessibility	No	cleanup of MECs located on the surface only	
3	LUCs; Focused Surface and Subsurface Clearance	1	Full Accessibility	No	cleanup of MECs located both on the surface and subsurface	
4	Unlimited Use/Access	3	Full Accessibility	No	cleanup of MECs located both on the surface and subsurface	
5						
6						

According to the 'Summary Info' worksheet, no future land uses are planned. For those alternatives where you answered 'No' in Column E, the land use activities will be assessed against current land uses.

Reference(s) for table above:

Final RI/FS Report (April 2014)

Site ID: **Western Range Area D**
Date: **4/7/2014**

Energetic Material Type Input Factor Categories

Comments

The following table is used to determine scores associated with the energetic materials. Materials are listed in order from most hazardous to least hazardous.

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
High Explosive and Low Explosive Filler in Fragmenting Rounds	100	100	100
White Phosphorus	70	70	70
Pyrotechnic	60	60	60
Propellant	50	50	50
Spotting Charge	40	40	40
Incendiary	30	30	30

The most hazardous type of energetic material listed in the 'Munitions, Bulk Explosive Info' Worksheet falls under the category 'High Explosive and Low Explosive Filler in Fragmenting Rounds'.

	Score
Baseline Conditions:	**100**
Surface Cleanup:	**100**
Subsurface Cleanup:	**100**

Location of Additional Human Receptors Input Factor Categories

1. What is the Explosive Safety Quantity Distance (ESQD) from the Explosive Siting Plan or the Explosive Safety Submission for the MRS? 337 feet
2. Are there currently any features or facilities where people may congregate within the MRS, or within the ESQD arc? Yes
3. Please describe the facility or feature.

Residential

MEC Item(s) used to calculate the ESQD for current use activities

Item #3. Artillery (155mm, High Explosive) [redacted]

The following table is used to determine scores associated with the location of additional human receptors (current use activities):

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Inside the MRS or inside the ESQD arc	30	30	30
Outside of the ESQD arc	0	0	0

4. Current use activities are 'Inside the MRS or inside the ESQD arc', based on Question 2.'

	Score
Baseline Conditions:	**30**
Surface Cleanup:	**30**
Subsurface Cleanup:	**30**

Site Accessibility Input Factor Categories

[redacted]

The following table is used to determine scores associated with site accessibility:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Full Accessibility	No barriers to entry, including signage but no fencing	80	80	80
Moderate Accessibility	Some barriers to entry, such as barbed wire fencing or rough terrain	55	55	55
Limited Accessibility	Significant barriers to entry, such as unguarded chain link fence or requirements for special transportation to reach the site	15	15	15
Very Limited Accessibility	A site with guarded chain link fence or terrain that requires special equipment and skills (e.g., rock climbing) to access	5	5	5

Current Use Activities

Score

Select the category that best describes the site accessibility under the current use scenario:

Full Accessibility

Baseline Conditions:	**80**
Surface Cleanup:	**80**
Subsurface Cleanup:	**80**

[redacted]

Response Alternative No. 1: No DoD Action Indicated

Based on the 'Planned Remedial or Removal Actions' Worksheet, this alternative will lead to 'Full Accessibility'.

Baseline Conditions:	**80**
Surface Cleanup:	**80**
Subsurface Cleanup:	**80**

Response Alternative No. 2: LUCs; 100 Percent Surface Clearance

Based on the 'Planned Remedial or Removal Actions' Worksheet, this alternative will lead to 'Full Accessibility'.

Baseline Conditions:	**80**
Surface Cleanup:	**80**
Subsurface Cleanup:	**80**

Response Alternative No. 3: LUCs; Focused Surface and Subsurface Clearance

Based on the 'Planned Remedial or Removal Actions' Worksheet, this alternative will lead to 'Full Accessibility'.

Baseline Conditions:	**80**
Surface Cleanup:	**80**
Subsurface Cleanup:	**80**

Response Alternative No. 4: Unlimited Use/Access

Based on the 'Planned Remedial or Removal Actions' Worksheet, this alternative will lead to 'Full Accessibility'.

Baseline Conditions:	**80**
Surface Cleanup:	**80**
Subsurface Cleanup:	**80**

Potential Contact Hours Input Factor Categories

The following table is used to determine scores associated with the total potential contact time:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Many Hours	≥1,000,000 receptor-hrs/yr	120	90	30
Some Hours	100,000 to 999,999 receptor hrs/yr	70	50	20
Few Hours	10,000 to 99,999 receptor-hrs/yr	40	20	10
Very Few Hours	<10,000 receptor-hrs/yr	15	10	5

Current Use Activities:

Input factors are only determined for baseline conditions for current use activities. Based on the 'Current and Future Activities' Worksheet, the Total Potential Contact Time is: **64,000** receptor hrs/yr

Based on the table above, this corresponds to a input factor score for baseline conditions of: **40** Score

Response Alternative No. 1: No DoD Action Indicated

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Total Potential Contact Time, based on the contact time listed for current use activities (see 'Current and Future Activities' Worksheet) **64,000**

Based on the table above, this corresponds to input factor scores of: *Score*

Baseline Conditions: **40**
Surface Cleanup: **20**
Subsurface Cleanup: **10**

Response Alternative No. 2: LUCs; 100 Percent Surface Clearance

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Total Potential Contact Time, based on the contact time listed for current use activities (see 'Current and Future Activities' Worksheet) **64,000**

Based on the table above, this corresponds to input factor scores of: *Score*

Baseline Conditions: **40**
Surface Cleanup: **20**
Subsurface Cleanup: **10**

Response Alternative No. 3: LUCs; Focused Surface and Subsurface

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Total Potential Contact Time, based on the contact time listed for current use activities (see 'Current and Future Activities' Worksheet) **64,000**

Based on the table above, this corresponds to input factor scores of: *Score*

Baseline Conditions: **40**
Surface Cleanup: **20**
Subsurface Cleanup: **10**

Response Alternative No. 4: Unlimited Use/Access

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Total Potential Contact Time, based on the contact time listed for current use activities (see 'Current and Future Activities' Worksheet) **64,000**

Based on the table above, this corresponds to input factor scores of: *Score*

Baseline Conditions: **40**
Surface Cleanup: **20**
Subsurface Cleanup: **10**

Amount of MEC Input Factor Categories

The following table is used to determine scores associated with the Amount of MEC:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Target Area	Areas at which munitions fire was directed	180	120	30
OB/OD Area	Sites where munitions were disposed of by open burn or open detonation methods. This category refers to the core activity area of an OB/OD area. See the "Safety Buffer Areas" category for safety fans and kick-outs.	180	110	30
Function Test Range	Areas where the serviceability of stored munitions or weapons systems are tested. Testing may include components, partial functioning or complete functioning of stockpile or developmental items.	165	90	25
Burial Pit	The location of a burial of large quantities of MEC items.	140	140	10
Maneuver Areas	Areas used for conducting military exercises in a simulated conflict area or war zone	115	15	5
Firing Points	The location from which a projectile, grenade, ground signal, rocket, guided missile, or other device is to be ignited, propelled, or released.	75	10	5
Safety Buffer Areas	Areas outside of target areas, test ranges, or OB/OD areas that were designed to act as a safety zone to contain munitions that do not hit targets or to contain kick-outs from OB/OD areas.	30	10	5
Storage	Any facility used for the storage of military munitions, such as earth-covered magazines, above-ground magazines, and open-air storage areas.	25	10	5
Explosive-Related Industrial Facility	Former munitions manufacturing or demilitarization sites and TNT production plants	20	10	5

Select the category that best describes the ***most hazardous*** amount of MEC: *Score*

Target Area

Baseline Conditions:	**180**
Surface Cleanup:	**120**
Subsurface Cleanup:	**30**

Minimum MEC Depth Relative to the Maximum Intrusive Depth Input Factor Categories

Current Use Activities

The shallowest minimum MEC depth, based on the 'Cased Munitions Information' Worksheet: **0** ft
The deepest intrusive depth: **1** ft
The table below is used to determine scores associated with the minimum MEC depth relative to the maximum intrusive depth:

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	240	150	95
Baseline Condition: MEC located surface and subsurface, After Cleanup: Intrusive depth does not overlap with subsurface MEC.	240	50	25
Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.	150	N/A	95
Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth does not overlap with minimum MEC depth.	50	N/A	25

Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth will overlap after cleanup. MECs are located at both the surface and subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.' For 'Current Use Activities', only Baseline Conditions are considered. **240** *Score*

Future Use Activities

Deepest intrusive depth: ft

Not enough information has been entered to determine the input factor category. *Score*

Response Alternative No. 1: No DoD Action Indicated

Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): **0** ft

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Maximum Intrusive Depth, based on the maximum intrusive depth listed for current use activities (see 'Current and Future Activities' Worksheet) **1** ft

Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth overlaps. MECs are located at both the surface and subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.'

	Score
Baseline Conditions:	**240**
Surface Cleanup:	
Subsurface Cleanup:	

Response Alternative No. 2: LUCs; 100 Percent Surface Clearance

Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): **0.33** ft

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Maximum Intrusive Depth, based on the maximum intrusive depth listed for current use activities (see 'Current and Future Activities' Worksheet) **1** ft

Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth overlaps. MECs are located at both the surface and subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.'

	Score
Baseline Conditions:	
Surface Cleanup:	**150**
Subsurface Cleanup:	

Response Alternative No. 3: LUCs; Focused Surface and Subsurface Clearance

Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): **1** ft

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Maximum Intrusive Depth, based on the maximum intrusive depth listed for current use activities (see 'Current and Future Activities' Worksheet) **1** ft

Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth overlaps. MECs are located at both the surface and subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.'

	Score
Baseline Conditions:	
Surface Cleanup:	
Subsurface Cleanup:	**95**

Response Alternative No. 4: Unlimited Use/Access

Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): **3** ft

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Maximum Intrusive Depth, based on the maximum intrusive depth listed for current use activities (see 'Current and Future Activities' Worksheet) **1** ft

Because the shallowest minimum MEC depth is greater than the deepest intrusive depth, the intrusive depth does not overlap. MECs are located at both the surface and subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located surface and subsurface, After Cleanup: Intrusive depth does not overlap with subsurface MEC.'

	Score
Baseline Conditions:	
Surface Cleanup:	
Subsurface Cleanup:	**25**

Migration Potential Input Factor Categories

Is there any physical or historical evidence that indicates it is possible for natural physical forces in the area (e.g., frost heave, erosion) to expose subsurface MEC items, or move surface or subsurface MEC items? Yes

If "yes", describe the nature of natural forces. Indicate key areas of potential migration (e.g., overland water flow) on a map as appropriate (attach a map to the bottom of this sheet, or as a separate worksheet).

Erosion

The following table is used to determine scores associated with the migration potential:

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Possible	30	30	10
Unlikely	10	10	10

Based on the question above, migration potential is 'Possible.'

	Score
Baseline Conditions:	**30**
Surface Cleanup:	**30**
Subsurface Cleanup:	**10**

Reference(s) for above information:

Final RI/FS Report (April 2014) [redacted]

MEC Classification Input Factor Categories

Cased munitions information has been inputed into the 'Munitions, Bulk Explosive Info' Worksheet; therefore, bulk explosives do not comprise all MECs for this MRS.

The 'Amount of MEC' category is 'Target Area'. It cannot be automatically assumed that the MEC items from this category are DMM. Therefore, the conservative assumption is that the MEC items in this MRS are UXO.

Has a technical assessment shown that MEC in the OB/OD Area is DMM?

Are any of the munitions listed in the 'Munitions, Bulk Explosive Info' Worksheet: Yes

- Submunitions
- Rifle-propelled 40mm projectiles (often called 40mm grenades)
- Munitions with white phosphorus filler
- High explosive anti-tank (HEAT) rounds
- Hand grenades
- Fuzes
- Mortars

At least one item listed in the 'Munitions, Bulk Explosive Info' Worksheet was identified as 'fuzed'.

The following table is used to determine scores associated with MEC classification categories:

	UXO Special Case	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
UXO Special Case		180	180	180
UXO		110	110	110
Fuzed DMM Special Case		105	105	105
Fuzed DMM		55	55	55
Unfuzed DMM		45	45	45
Bulk Explosives		45	45	45

Based on your answers above, the MEC classification is 'UXO Special Case'.

	Score
Baseline Conditions:	**180**
Surface Cleanup:	**180**
Subsurface Cleanup:	**180**

MEC Size Input Factor Categories

The following table is used to determine scores associated with MEC Size:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Small	Any munitions (from the 'Munitions, Bulk Explosive Info' Worksheet) weigh less than 90 lbs; small enough for a receptor to be able to move and initiate a detonation	40	40	40
Large	All munitions weigh more than 90 lbs; too large to move without equipment	0	0	0

Based on the definitions above and the types of munitions at the site (see 'Munitions, Bulk Explosive Info' Worksheet), the MEC Size Input Factor is: Small

	Score
Baseline Conditions:	**40**
Surface Cleanup:	**40**
Subsurface Cleanup:	**40**

Scoring Summary

Site ID:	Western Range Area D	a. Scoring Summary for Current Use Activities	
Date:	4/7/2014	Response Action Cleanup:	No Response Action
Input Factor		Input Factor Category	Score
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors		Inside the MRS or inside the ESQD arc	30
III. Site Accessibility		Full Accessibility	80
IV. Potential Contact Hours		10,000 to 99,999 receptor-hrs/yr	40
V. Amount of MEC		Target Area	180
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth		Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	240
VII. Migration Potential		Possible	30
VIII. MEC Classification		UXO Special Case	180
IX. MEC Size		Small	40
		Total Score	920
		Hazard Level Category	1

Site ID:	Western Range Area D	c. Scoring Summary for Response Alternative 1: No DoD Action Indicated	
Date:	4/7/2014	Response Action Cleanup:	No MEC cleanup
Input Factor		Input Factor Category	Score
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors		Inside the MRS or inside the ESQD arc	30
III. Site Accessibility		Full Accessibility	80
IV. Potential Contact Hours		10,000 to 99,999 receptor-hrs/yr	40
V. Amount of MEC		Target Area	180
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth		Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	240
VII. Migration Potential		Possible	30
VIII. MEC Classification		UXO Special Case	180
IX. MEC Size		Small	40
		Total Score	920
		Hazard Level Category	1

Site ID:	Western Range Area D	d. Scoring Summary for Response Alternative 2: LUCs; 100 Percent Surface Clearance	
Date:	4/7/2014	Response Action Cleanup:	cleanup of MECs located on the surface only
Input Factor		Input Factor Category	Score
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors		Inside the MRS or inside the ESQD arc	30
III. Site Accessibility		Full Accessibility	80
IV. Potential Contact Hours		10,000 to 99,999 receptor-hrs/yr	20
V. Amount of MEC		Target Area	120
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth		Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	150
VII. Migration Potential		Possible	30
VIII. MEC Classification		UXO Special Case	180
IX. MEC Size		Small	40
		Total Score	750
		Hazard Level Category	2

Site ID:	Western Range Area D	e. Scoring Summary for Response Alternative 3: LUCs; Focused Surface and Subsurface Clearance	
Date:	4/7/2014	Response Action Cleanup:	cleanup of MECs located both on the surface and subsurface
Input Factor		Input Factor Category	Score
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors		Inside the MRS or inside the ESQD arc	30
III. Site Accessibility		Full Accessibility	80
IV. Potential Contact Hours		10,000 to 99,999 receptor-hrs/yr	10
V. Amount of MEC		Target Area	30
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth		Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	95
VII. Migration Potential		Possible	10
VIII. MEC Classification		UXO Special Case	180
IX. MEC Size		Small	40
		Total Score	575
		Hazard Level Category	3

Site ID:	Western Range Area D	f. Scoring Summary for Response Alternative 4: Unlimited Use/Access	
Date:	4/7/2014	Response Action Cleanup:	cleanup of MECs located both on the surface and subsurface
Input Factor		Input Factor Category	Score
I. Energetic Material Type		High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors		Inside the MRS or inside the ESQD arc	30
III. Site Accessibility		Full Accessibility	80
IV. Potential Contact Hours		10,000 to 99,999 receptor-hrs/yr	10
V. Amount of MEC		Target Area	30
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth		Baseline Condition: MEC located surface and subsurface, After Cleanup: Intrusive depth does not overlap with subsurface MEC.	25
VII. Migration Potential		Possible	10
VIII. MEC Classification		UXO Special Case	180
IX. MEC Size		Small	40
		Total Score	505
		Hazard Level Category	4

MEC HA Hazard Level Determination		
Site ID: Western Range Area D		
Date: 4/7/2014		
	Hazard Level Category	Score
a. Current Use Activities	1	920
b. Response Alternative 1: No DoD Action Indicated	1	920
c. Response Alternative 2: LUCs; 100 Percent Surface Clearance	2	750
d. Response Alternative 3: LUCs; Focused Surface and Subsurface Clearance	3	575
e. Response Alternative 4: Unlimited Use/Access	4	505
Characteristics of the MRS		
Is critical infrastructure located within the MRS or within the ESQD arc?	Yes	
Are cultural resources located within the MRS or within the ESQD arc?	Yes	
Are significant ecological resources located within the MRS or within the ESQD arc?	Yes	

MEC HA Summary Information

Comments

Site ID: Grenade Range Area
Date: 4/7/2014

Please identify the single specific area to be assessed in this hazard assessment. From this point forward, all references to "site" or "MRS" refer to the specific area that you have defined.

A. Enter a unique identifier for the site:

Grenade Range Area

Provide a list of information sources used for this hazard assessment. As you are completing the worksheets, use the "Select Ref(s)" buttons at the ends of each subsection to select the applicable information sources from the list below.

Ref. No.	Title (include version, publication date)
1	Final RI/FS Report (April 2014)
2	Non-Time Critical Removal Action Report (2010)
3	Report (2007)
4	Investigation, and Removal Report (2002)
5	Removal Action Site Specific Final Report (2001)
6	Engineering Evaluation/Cost Analysis Report (2000)
7	Explosives Sampling Report (1998)
8	Report (1997)
9	Archive Search Report (1994)

B. Briefly describe the site:

1. Area (include units): 97 acres
2. Past munitions-related use:
Target Area
3. Current land-use activities (list all that occur):
Public property available for hunting.
4. Are changes to the future land-use planned? No
5. What is the basis for the site boundaries?
FUDSMIS
6. How certain are the site boundaries?
Boundaries are speculative based on historical information.

Reference(s) for Part B:

Final RI/FS Report (April 2014)

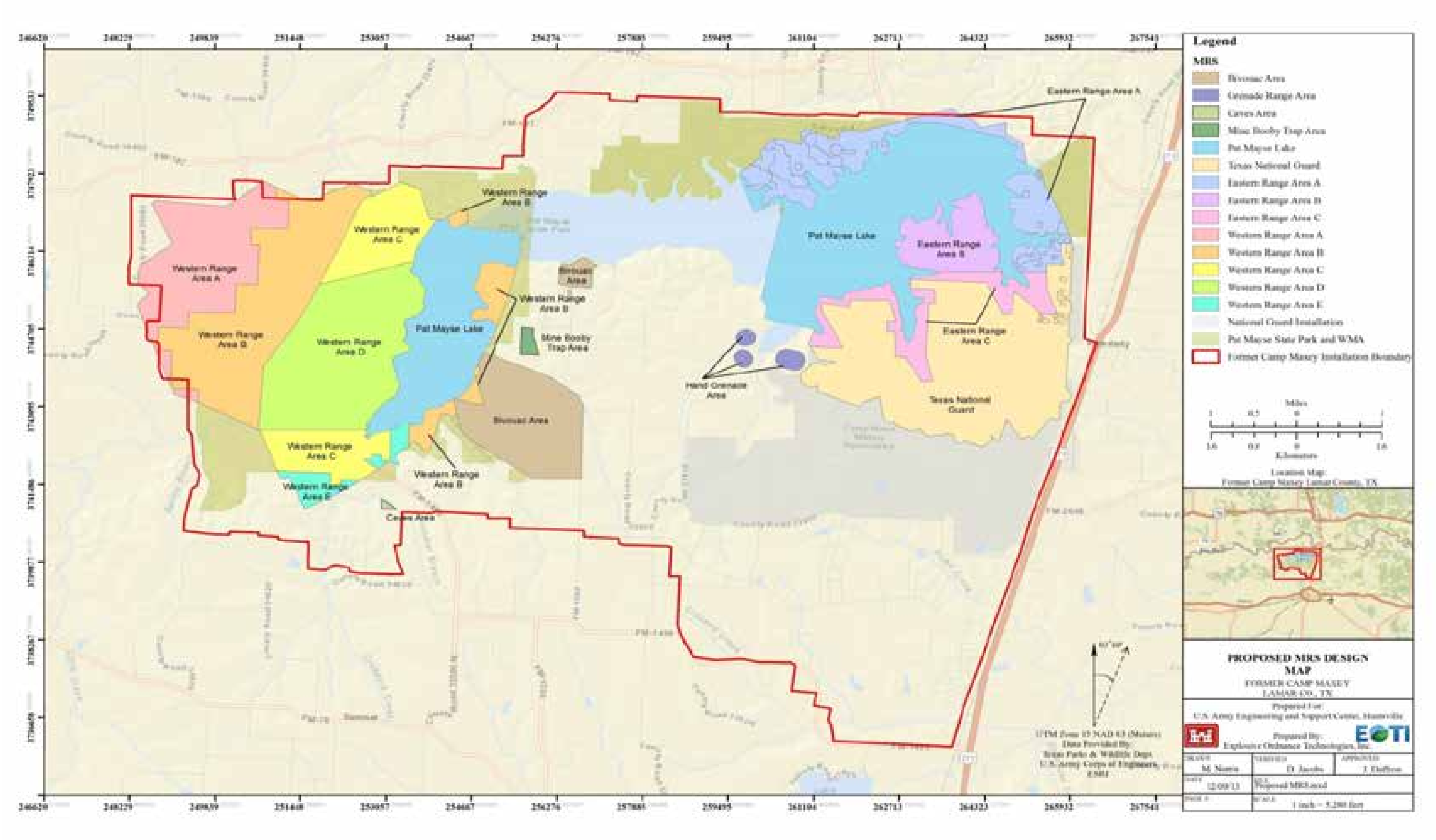
C. Historical Clearances

1. Have there been any historical clearances at the site? No, none

Reference(s) for Part C:

Final RI/FS Report (April 2014)

D. Attach maps of the site below (select 'Insert/Picture' on the menu bar.)



Site ID: **Grenade Range Area**
Date: **4/7/2014**

Cased Munitions Information

Item No.	Munition Type (e.g., mortar, projectile, etc.)	Munition Size	Munition Size Units	Mark/ Model	Energetic Material Type	Is Munition Fuzed?	Fuzing Type	Fuze Condition	Minimum Depth for Munition (ft)	Location of Munitions	Comments (include rationale for munitions that are "subsurface only")
1	Grenades			MKII Hand Genade	High Explosive	UNK	UNK	UNK	0.1	Surface and Subsurface	
2	Rockets	2.36	inches	2.36-inch Rocket	High Explosive	UNK	UNK	UNK	0	Surface and Subsurface	Found on ground surface during geophysical operations.
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											

Reference(s) for table above:

Final RI/FS Report (April 2014) [redacted]

Site ID: **Grenade Range Area**
Date: **4/7/2014**

Activities Currently Occurring at the Site

Activity No.	Activity	Number of people per year who participate in the activity	Number of hours per year a single person spends on the activity	Potential Contact Time (receptor hours/year)	Maximum intrusive depth (ft)	Comments
1	Recreational (i.e., hunting, hiking, lake access)	1,000	16	**16,000**	1	Receptor activity level is speculative but thought to be conservative.
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

Total Potential Contact Time (receptor hrs/yr): **16,000**
Maximum intrusive depth at site (ft): **1**

Reference(s) for table above:

Final RI/FS Report (April 2014)

[redacted]

Site ID: **Grenade Range Area**
Date: **4/7/2014**

Planned Remedial or Removal Actions

Response Action No.	Response Action Description	Expected Resulting Minimum MEC Depth (ft)	Expected Resulting Site Accessibility	Will land use activities change if this response action is implemented?	What is the expected scope of cleanup?	Comments
1	No DoD Action Indicated	0	Full Accessibility	No	No MEC cleanup	
2	LUCs	0	Full Accessibility	No	No MEC cleanup	
3	LUCs; Focused Surface Clearance	0.1	Full Accessibility	No	cleanup of MECs located on the surface only	
4	LUCs; 100 Percent Surface Clearance	0.5	Full Accessibility	No	cleanup of MECs located on the surface only	
5	Unlimited Use/Access	3	Full Accessibility	No	cleanup of MECs located both on the surface and subsurface	
6						

According to the 'Summary Info' worksheet, no future land uses are planned. For those alternatives where you answered 'No' in Column E, the land use activities will be assessed against current land uses.

Reference(s) for table above:

Final RI/FS Report (April 2014)

[redacted]

Site ID: **Grenade Range Area**

Date: **4/7/2014**

Energetic Material Type Input Factor Categories

Comments

The following table is used to determine scores associated with the energetic materials. Materials are listed in order from most hazardous to least hazardous.

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
High Explosive and Low Explosive Filler in Fragmenting Rounds	100	100	100
White Phosphorus	70	70	70
Pyrotechnic	60	60	60
Propellant	50	50	50
Spotting Charge	40	40	40
Incendiary	30	30	30

The most hazardous type of energetic material listed in the 'Munitions, Bulk Explosive Info' Worksheet falls under the category 'High Explosive and Low Explosive Filler in Fragmenting Rounds'.

Score

Baseline Conditions:	**100**
Surface Cleanup:	**100**
Subsurface Cleanup:	**100**

Location of Additional Human Receptors Input Factor Categories

1. What is the Explosive Safety Quantity Distance (ESQD) from the Explosive Siting Plan or the Explosive Safety Submission for the MRS? 337 feet

2. Are there currently any features or facilities where people may congregate within the MRS, or within the ESQD arc? Yes

3. Please describe the facility or feature.

Residential

MEC Item(s) used to calculate the ESQD for current use activities

Item #3. Artillery (155mm, High Explosive) [redacted]

The following table is used to determine scores associated with the location of additional human receptors (current use activities):

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Inside the MRS or inside the ESQD arc	30	30	30
Outside of the ESQD arc	0	0	0

4. Current use activities are 'Inside the MRS or inside the ESQD arc', based on Question 2.'

Score

Baseline Conditions:	**30**
Surface Cleanup:	**30**
Subsurface Cleanup:	**30**

Site Accessibility Input Factor Categories

The following table is used to determine scores associated with site accessibility:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Full Accessibility	No barriers to entry, including signage but no fencing	80	80	80
Moderate Accessibility	Some barriers to entry, such as barbed wire fencing or rough terrain	55	55	55
Limited Accessibility	Significant barriers to entry, such as unguarded chain link fence or requirements for special transportation to reach the site	15	15	15
Very Limited Accessibility	A site with guarded chain link fence or terrain that requires special equipment and skills (e.g., rock climbing) to access	5	5	5

Current Use Activities

Score

Select the category that best describes the site accessibility under the current use scenario:

Full Accessibility

Baseline Conditions:	**80**
Surface Cleanup:	**80**
Subsurface Cleanup:	**80**

Response Alternative No. 1: No DoD Action Indicated

Based on the 'Planned Remedial or Removal Actions' Worksheet, this alternative will lead to 'Full Accessibility'.

Baseline Conditions:	**80**
Surface Cleanup:	**80**
Subsurface Cleanup:	**80**

Response Alternative No. 2: LUCs

Based on the 'Planned Remedial or Removal Actions' Worksheet, this alternative will lead to 'Full Accessibility'.

Baseline Conditions:	**80**
Surface Cleanup:	**80**
Subsurface Cleanup:	**80**

Response Alternative No. 3: LUCs; Focused Surface Clearance

Based on the 'Planned Remedial or Removal Actions' Worksheet, this alternative will lead to 'Full Accessibility'.

Baseline Conditions:	**80**
Surface Cleanup:	**80**
Subsurface Cleanup:	**80**

Response Alternative No. 4: LUCs; 100 Percent Surface Clearance

Based on the 'Planned Remedial or Removal Actions' Worksheet, this alternative will lead to 'Full Accessibility'.

Baseline Conditions:	**80**
Surface Cleanup:	**80**
Subsurface Cleanup:	**80**

Potential Contact Hours Input Factor Categories

The following table is used to determine scores associated with the total potential contact time:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Many Hours	≥1,000,000 receptor-hrs/yr	120	90	30
Some Hours	100,000 to 999,999 receptor hrs/yr	70	50	20
Few Hours	10,000 to 99,999 receptor-hrs/yr	40	20	10
Very Few Hours	<10,000 receptor-hrs/yr	15	10	5

Current Use Activities:

Input factors are only determined for baseline conditions for current use activities. Based on the 'Current and Future Activities' Worksheet, the Total Potential Contact Time is: **16,000** receptor hrs/yr

Based on the table above, this corresponds to a input factor score for baseline conditions of: **40** Score

Response Alternative No. 1: No DoD Action Indicated

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Total Potential Contact Time, based on the contact time listed for current use activities (see 'Current and Future Activities' Worksheet) **16,000**

Based on the table above, this corresponds to input factor scores of: *Score*

Baseline Conditions: **40**

Surface Cleanup: **20**

Subsurface Cleanup: **10**

Response Alternative No. 2: LUCs

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Total Potential Contact Time, based on the contact time listed for current use activities (see 'Current and Future Activities' Worksheet) **16,000**

Based on the table above, this corresponds to input factor scores of: *Score*

Baseline Conditions: **40**

Surface Cleanup: **20**

Subsurface Cleanup: **10**

Response Alternative No. 3: LUCs; Focused Surface Clearance

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Total Potential Contact Time, based on the contact time listed for current use activities (see 'Current and Future Activities' Worksheet) **16,000**

Based on the table above, this corresponds to input factor scores of: *Score*

Baseline Conditions: **40**

Surface Cleanup: **20**

Subsurface Cleanup: **10**

Response Alternative No. 4: LUCs; 100 Percent Surface Clearance

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Total Potential Contact Time, based on the contact time listed for current use activities (see 'Current and Future Activities' Worksheet) **16,000**

Based on the table above, this corresponds to input factor scores of: *Score*

Baseline Conditions: **40**

Surface Cleanup: **20**

Subsurface Cleanup: **10**

Amount of MEC Input Factor Categories

The following table is used to determine scores associated with the Amount of MEC:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Target Area	Areas at which munitions fire was directed	180	120	30
OB/OD Area	Sites where munitions were disposed of by open burn or open detonation methods. This category refers to the core activity area of an OB/OD area. See the "Safety Buffer Areas" category for safety fans and kick-outs.	180	110	30
Function Test Range	Areas where the serviceability of stored munitions or weapons systems are tested. Testing may include components, partial functioning or complete functioning of stockpile or developmental items.	165	90	25
Burial Pit	The location of a burial of large quantities of MEC items.	140	140	10
Maneuver Areas	Areas used for conducting military exercises in a simulated conflict area or war zone	115	15	5
Firing Points	The location from which a projectile, grenade, ground signal, rocket, guided missile, or other device is to be ignited, propelled, or released.	75	10	5
Safety Buffer Areas	Areas outside of target areas, test ranges, or OB/OD areas that were designed to act as a safety zone to contain munitions that do not hit targets or to contain kick-outs from OB/OD areas.	30	10	5
Storage	Any facility used for the storage of military munitions, such as earth-covered magazines, above-ground magazines, and open-air storage areas.	25	10	5
Explosive-Related Industrial Facility	Former munitions manufacturing or demilitarization sites and TNT production plants	20	10	5

Select the category that best describes the ***most hazardous*** amount of MEC: ***Score***

Target Area

Baseline Conditions:	**180**
Surface Cleanup:	**120**
Subsurface Cleanup:	**30**

Minimum MEC Depth Relative to the Maximum Intrusive Depth Input Factor Categories

Current Use Activities

The shallowest minimum MEC depth, based on the 'Cased Munitions Information' Worksheet: **0** ft

The deepest intrusive depth: **1** ft

The table below is used to determine scores associated with the minimum MEC depth relative to the maximum intrusive depth:

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	240	150	95
Baseline Condition: MEC located surface and subsurface, After Cleanup: Intrusive depth does not overlap with subsurface MEC.	240	50	25
Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth overlaps with minimum MEC depth.	150	N/A	95
Baseline Condition: MEC located only subsurface. Baseline Condition or After Cleanup: Intrusive depth does not overlap with minimum MEC depth.	50	N/A	25

Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth will overlap after cleanup. MECs are located at both the surface and subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.' For 'Current Use Activities', only Baseline Conditions are considered. **240** *Score*

Future Use Activities

Deepest intrusive depth: ft

Not enough information has been entered to determine the input factor category. *Score*

Response Alternative No. 1: No DoD Action Indicated

Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): **0** ft

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Maximum Intrusive Depth, based on the maximum intrusive depth listed for current use activities (see 'Current and Future Activities' Worksheet) **1** ft

Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth overlaps. MECs are located at both the surface and subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.'

	Score
Baseline Conditions:	**240**
Surface Cleanup:	
Subsurface Cleanup:	

Response Alternative No. 2: LUCs

Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): **0** ft

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Maximum Intrusive Depth, based on the maximum intrusive depth listed for current use activities (see 'Current and Future Activities' Worksheet) **1** ft

Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth overlaps. MECs are located at both the surface and subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.'

	Score
Baseline Conditions:	**240**
Surface Cleanup:	
Subsurface Cleanup:	

Response Alternative No. 3: LUCs; Focused Surface Clearance

Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): **0.1** ft

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Maximum Intrusive Depth, based on the maximum intrusive depth listed for current use activities (see 'Current and Future Activities' Worksheet) **1** ft

Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth overlaps. MECs are located at both the surface and subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.'

	Score
Baseline Conditions:	
Surface Cleanup:	**150**
Subsurface Cleanup:	

Response Alternative No. 4: LUCs; 100 Percent Surface Clearance

Expected minimum MEC depth (from the 'Planned Remedial or Removal Actions' Worksheet): **0.5** ft

Based on the 'Planned Remedial or Removal Actions' Worksheet, land use activities will not change if this alternative is implemented.

Maximum Intrusive Depth, based on the maximum intrusive depth listed for current use activities (see 'Current and Future Activities' Worksheet) **1** ft

Because the shallowest minimum MEC depth is less than or equal to the deepest intrusive depth, the intrusive depth overlaps. MECs are located at both the surface and subsurface, based on the 'Munitions, Bulk Explosive Info' Worksheet. Therefore, the category for this input factor is 'Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.'

	Score
Baseline Conditions:	
Surface Cleanup:	**150**
Subsurface Cleanup:	

Migration Potential Input Factor Categories

Is there any physical or historical evidence that indicates it is possible for natural physical forces in the area (e.g., frost heave, erosion) to expose subsurface MEC items, or move surface or subsurface MEC items? Yes

If "yes", describe the nature of natural forces. Indicate key areas of potential migration (e.g., overland water flow) on a map as appropriate (attach a map to the bottom of this sheet, or as a separate worksheet).

Erosion

The following table is used to determine scores associated with the migration potential:

	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Possible	30	30	10
Unlikely	10	10	10

Based on the question above, migration potential is 'Possible.'

	Score
Baseline Conditions:	**30**
Surface Cleanup:	**30**
Subsurface Cleanup:	**10**

Reference(s) for above information:

Final RI/FS Report (April 2014) [redacted]

MEC Classification Input Factor Categories

Cased munitions information has been inputed into the 'Munitions, Bulk Explosive Info' Worksheet; therefore, bulk explosives do not comprise all MECs for this MRS.

The 'Amount of MEC' category is 'Target Area'. It cannot be automatically assumed that the MEC items from this category are DMM. Therefore, the conservative assumption is that the MEC items in this MRS are UXO.

Has a technical assessment shown that MEC in the OB/OD Area is DMM?

Are any of the munitions listed in the 'Munitions, Bulk Explosive Info' Worksheet: Yes

- Submunitions
- Rifle-propelled 40mm projectiles (often called 40mm grenades)
- Munitions with white phosphorus filler
- High explosive anti-tank (HEAT) rounds
- Hand grenades
- Fuzes
- Mortars

None of the items listed in the 'Munitions, Bulk Explosive Info' Worksheet were identified as 'fuzed'.

The following table is used to determine scores associated with MEC classification categories:

	UXO Special Case	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
UXO Special Case		180	180	180
UXO		110	110	110
Fuzed DMM Special Case		105	105	105
Fuzed DMM		55	55	55
Unfuzed DMM		45	45	45
Bulk Explosives		45	45	45

Based on your answers above, the MEC classification is 'UXO Special Case'. ***Score***

	Score
Baseline Conditions:	**180**
Surface Cleanup:	**180**
Subsurface Cleanup:	**180**

MEC Size Input Factor Categories

The following table is used to determine scores associated with MEC Size:

	Description	Baseline Conditions	Surface Cleanup	Subsurface Cleanup
Small	Any munitions (from the 'Munitions, Bulk Explosive Info' Worksheet) weigh less than 90 lbs; small enough for a receptor to be able to move and initiate a detonation	40	40	40
Large	All munitions weigh more than 90 lbs; too large to move without equipment	0	0	0

Based on the definitions above and the types of munitions at the site (see 'Munitions, Bulk Explosive Info' Worksheet), the MEC Size Input Factor is: Small

	Score
Baseline Conditions:	**40**
Surface Cleanup:	**40**
Subsurface Cleanup:	**40**

Scoring Summary

Site ID: Grenade Range Area	a. Scoring Summary for Current Use Activities	
Date: 4/7/2014	Response Action Cleanup:	No Response Action
Input Factor	**Input Factor Category**	**Score**
I. Energetic Material Type	High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors	Inside the MRS or inside the ESQD arc	30
III. Site Accessibility	Full Accessibility	80
IV. Potential Contact Hours	10,000 to 99,999 receptor-hrs/yr	40
V. Amount of MEC	Target Area	180
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth	Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	240
VII. Migration Potential	Possible	30
VIII. MEC Classification	UXO Special Case	180
IX. MEC Size	Small	40
	Total Score	**920**
	Hazard Level Category	**1**

Site ID: Grenade Range Area	c. Scoring Summary for Response Alternative 1: No DoD Action Indicated	
Date: 4/7/2014	Response Action Cleanup:	No MEC cleanup
Input Factor	**Input Factor Category**	**Score**
I. Energetic Material Type	High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors	Inside the MRS or inside the ESQD arc	30
III. Site Accessibility	Full Accessibility	80
IV. Potential Contact Hours	10,000 to 99,999 receptor-hrs/yr	40
V. Amount of MEC	Target Area	180
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth	Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	240
VII. Migration Potential	Possible	30
VIII. MEC Classification	UXO Special Case	180
IX. MEC Size	Small	40
	Total Score	**920**
	Hazard Level Category	**1**

Site ID: Grenade Range Area	d. Scoring Summary for Response Alternative 2: LUCs	
Date: 4/7/2014	Response Action Cleanup:	No MEC cleanup
Input Factor	**Input Factor Category**	**Score**
I. Energetic Material Type	High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors	Inside the MRS or inside the ESQD arc	30
III. Site Accessibility	Full Accessibility	80
IV. Potential Contact Hours	10,000 to 99,999 receptor-hrs/yr	40
V. Amount of MEC	Target Area	180
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth	Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	240
VII. Migration Potential	Possible	30
VIII. MEC Classification	UXO Special Case	180
IX. MEC Size	Small	40
	Total Score	**920**
	Hazard Level Category	**1**

Site ID: Grenade Range Area	e. Scoring Summary for Response Alternative 3: LUCs; Focused Surface Clearance	
Date: 4/7/2014	Response Action Cleanup:	cleanup of MECs located on the surface only
Input Factor	**Input Factor Category**	**Score**
I. Energetic Material Type	High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors	Inside the MRS or inside the ESQD arc	30
III. Site Accessibility	Full Accessibility	80
IV. Potential Contact Hours	10,000 to 99,999 receptor-hrs/yr	20
V. Amount of MEC	Target Area	120
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth	Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	150
VII. Migration Potential	Possible	30
VIII. MEC Classification	UXO Special Case	180
IX. MEC Size	Small	40
	Total Score	**750**
	Hazard Level Category	**2**

Site ID: Grenade Range Area	f. Scoring Summary for Response Alternative 4: LUCs; 100 Percent Surface Clearance	
Date: 4/7/2014	Response Action Cleanup:	cleanup of MECs located on the surface only
Input Factor	**Input Factor Category**	**Score**
I. Energetic Material Type	High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors	Inside the MRS or inside the ESQD arc	30
III. Site Accessibility	Full Accessibility	80
IV. Potential Contact Hours	10,000 to 99,999 receptor-hrs/yr	20
V. Amount of MEC	Target Area	120
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth	Baseline Condition: MEC located surface and subsurface. After Cleanup: Intrusive depth overlaps with subsurface MEC.	150
VII. Migration Potential	Possible	30
VIII. MEC Classification	UXO Special Case	180
IX. MEC Size	Small	40
	Total Score	**750**
	Hazard Level Category	**2**

Site ID: Grenade Range Area	g. Scoring Summary for Response Alternative 5: Unlimited Use/Access	
Date: 4/7/2014	Response Action Cleanup:	cleanup of MECs located both on the surface and subsurface
Input Factor	**Input Factor Category**	**Score**
I. Energetic Material Type	High Explosive and Low Explosive Filler in Fragmenting Rounds	100
II. Location of Additional Human Receptors	Inside the MRS or inside the ESQD arc	30
III. Site Accessibility	Full Accessibility	80
IV. Potential Contact Hours	10,000 to 99,999 receptor-hrs/yr	10
V. Amount of MEC	Target Area	30
VI. Minimum MEC Depth Relative to Maximum Intrusive Depth	Baseline Condition: MEC located surface and subsurface, After Cleanup: Intrusive depth does not overlap with subsurface MEC.	25
VII. Migration Potential	Possible	10
VIII. MEC Classification	UXO Special Case	180
IX. MEC Size	Small	40
	Total Score	**505**
	Hazard Level Category	**4**

MEC HA Hazard Level Determination		
Site ID: Grenade Range Area		
Date: 4/7/2014		
	Hazard Level Category	Score
a. Current Use Activities	1	920
c. Response Alternative 1: No DoD Action Indicated	1	920
d. Response Alternative 2: LUCs	1	920
e. Response Alternative 3: LUCs; Focused Surface Clearance	2	750
f. Response Alternative 4: LUCs; 100 Percent Surface Clearance	2	750
g. Response Alternative 5: Unlimited Use/Access	4	505
Characteristics of the MRS		
Is critical infrastructure located within the MRS or within the ESQD arc?	Yes	
Are cultural resources located within the MRS or within the ESQD arc?	Yes	
Are significant ecological resources located within the MRS or within the ESQD arc?	Yes	

APPENDIX F: MUNITIONS RESPONSE SITE PRIORITIZATION PROTOCOL
MILITARY MUNITIONS RESPONSE PROGRAM
REMEDIAL INVESTIGATION/FEASIBILITY STUDY

FORMER CAMP MAXEY
Paris, Texas

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the **MRS Summary**, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental nonmunitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Western Range Area A
Component: U.S. Army

Installation/Property Name: Camp Maxey FUDS

Location (City, County, State): Paris, Lamar County, TX

Site Name/Project Name (Project No.): Former Camp Maxey (K06TX0305) **PRDF/FRMD**:____________________

Date Information Entered/Updated: December 2013

Point of Contact (Name/Phone): Layne Young (410.332.4806)

Project Phase (check only one): RI/FS

q PA	q SI	ü RI	ü FS	q RD
q RA-C	q RIP	q RA-O	q RC	q LTM

Note: This Draft MRSPP was created in coordination with the U.S. Army Corps of Engineers and additional project stakeholders. Prior to being finalized the MRSPP will be included in a public notice and will be available for public review.

Media Evaluated (check all that apply):.

q Groundwater	q Sediment (human receptor)
q Surface soil	q Surface Water (ecological receptor)
q Sediment (ecological receptor)	q Surface Water (human receptor)

MRS Summary:

MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:

This MRS includes 1,310 acres located in the northwest portion of Camp Maxey. It is on private property primarily used for agriculture. There was no access granted to this area during the RI. Historical data indicated that it includes firing points and portions of artillery ranges fans for several ranges. Additional data is still needed to characterize the MRS. (RI/FS Report [EOTI, 2014]; Table 4-1)

Description of Pathways for Human and Ecological Receptors:
Potentially complete pathways exist for residents, trespassers, outdoor site workers, and biota for MEC in the surface and subsurface. Incomplete pathways exist for all human and ecological receptors for MC. (RI/FS Report [EOTI, 2014]; Section 5.1.2)

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond with **all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	• UXO that are considered most likely to function upon any interaction with exposed persons (e.g., submunitions, 40mm high-explosive [HE] grenades, white phosphorus [WP] munitions, high-explosive antitank [HEAT] munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions). • Hand grenades containing energetic filler. • Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard.	30
High explosive (used or damaged)	• UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered "sensitive." • DMM containing a high-explosive filler that have: § Been damaged by burning or detonation § Deteriorated to the point of instability.	25
Pyrotechnic (used or damaged)	• UXO containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades). • DMM containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades) that have: § Been damaged by burning or detonation § Deteriorated to the point of instability.	20
High explosive (unused)	• DMM containing a high-explosive filler that: § Have not been damaged by burning or detonation § Are not deteriorated to the point of instability.	15
Propellant	• UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). • DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: § Damaged by burning or detonation § Deteriorated to the point of instability.	15
Bulk secondary high explosives, pyrotechnics, or propellant	• DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). • DMM that are bulk secondary high explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	10
Pyrotechnic (not used or damaged)	• DMM containing a pyrotechnic filler (i.e., red phosphorus), other than white phosphorus filler, that: § Have not been damaged by burning or detonation § Are not deteriorated to the point of instability.	10
Practice	• UXO that are practice munitions that are not associated with a sensitive fuze. • DMM that are practice munitions that are not associated with a sensitive fuze and that have not: § Been damaged by burning or detonation § Deteriorated to the point of instability.	5
Riot control	• UXO or DMM containing a riot control agent filler (e.g., tear gas).	3
Small arms	• Used munitions or DMM that are categorized as small arms ammunition. (Physical evidence or historical evidence that no other types of munitions [e.g., grenades, subcaliber training rockets, demolition charges] were used or are present on the MRS is required for selection of this category.)	2
Evidence of no munitions	• Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
MUNITIONS TYPE	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	0

DIRECTIONS: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

No munitions or evidence of munitions (MD) has been found in the MRS; however, very limited , if any, investigations have been conducted. (RI/FS Report [EOTI, 2014]; Table 4-1)

Table 2
EHE Module: Source of Hazard Data Element Table

DIRECTIONS: Below are 11 classifications describing sources of explosive hazards. Circle the scores that correspond with **all** the sources of explosive hazards known or suspected to be present at the MRS.
Note: The terms *former range, practice munitions, small arms range, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former range	w The MRS is a former military range where munitions (including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas and associated buffer and safety zones.	10
Former munitions treatment (i.e., OB/OD) unit	w The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	8
Former practice munitions range	w The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	6
Former maneuver area	w The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	5
Former burial pit or other disposal area	w The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a water body) without prior thermal treatment.	5
Former industrial operating facilities	w The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	4
Former firing points	w The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of a former military range.	4
Former missile or air defense artillery emplacements	w The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	2
Former storage or transfer points	w The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	2
Former small arms range	w The MRS is a former military range where only small arms ammunition was used. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present to place an MRS into this category.)	1
Evidence of no munitions	w Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	0
SOURCE OF HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	10

DIRECTIONS: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

Numerous ranges overlap all or portions of the MRS. (RI/FS Report [EOTI, 2014]; Table 4-1)

Table 3

EHE Module: Location of Munitions Data Element Table

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.

Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed surface	W Physical evidence indicates that there are UXO or DMM on the surface of the MRS. W Historical evidence (i.e., a confirmed report such as an explosive ordnance disposal [EOD], police, or fire department report that an incident or accident that involved UXO or DMM occurred) indicates there are UXO or DMM on the surface of the MRS.	25
Confirmed subsurface, active	W Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. W Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	20
Confirmed subsurface, stable	W Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed. W Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed.	15
Suspected (physical evidence)	W There is physical evidence (e.g., munitions debris such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	10
Suspected (historical evidence)	W There is historical evidence indicating that UXO or DMM may be present at the MRS.	5
Subsurface, physical constraint	W There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	2
Small arms (regardless of location)	W The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present at the MRS to place an MRS into this category.)	1
Evidence of no munitions	W Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
LOCATION OF MUNITIONS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	0

DIRECTIONS: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

No UXO or evidence of munitions use (MD) has been found in the MRS. (RI/FS Report [EOTI, 2014]; Table 4-1)

Table 4
EHE Module: Ease of Access Data Element Table

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS.
Note: The term *barrier* is defined in Appendix C of the Primer.

Classification	Description	Score
No barrier	w There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	10
Barrier to MRS access is incomplete	w There is a barrier preventing access to parts of the MRS, but not the entire MRS.	8
Barrier to MRS access is complete but not monitored	w There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5
Barrier to MRS access is complete and monitored	w There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	0
EASE OF ACCESS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**10**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ease of Access*** classification in the space provided.

No barriers currently exist for the MRS. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 5
EHE Module: Status of Property Data Element Table

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD control	w The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal, or local governments; and land or water bodies managed by other federal agencies. w The MRS is at a location that is owned by DoD, but that DoD has leased to another entity and for which DoD does not control access 24 hours per day.	5
Scheduled for transfer from DoD control	w The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the Protocol is applied.	3
DoD control	w The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD must control access to the MRS 24 hours per day, every day of the calendar year.	0
STATUS OF PROPERTY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Status of Property*** classification in the space provided.

The MRs is located on privately owned property. (RI/FS Report [EOTI, 2014]; Table 4-1)

Table 6

EHE Module: Population Density Data Element Table

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score.

Note: Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 persons per square mile	w There are more than 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	5
100–500 persons per square mile	w There are 100 to 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	3
< 100 persons per square mile	w There are fewer than 100 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	1
POPULATION DENSITY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**1**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Density*** classification in the space provided.

According to U.S. Census data, the population density for Lamar County, TX is 55 persons per square mile. (Lamar County QuickFacts [U.S. Census Bureau]; http://quickfacts.census.gov/qfd/states/48/48277.html)

Table 7

EHE Module: Population Near Hazard Data Element Table

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
26 or more inhabited structures	w There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	5
16 to 25 inhabited structures	w There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15 inhabited structures	w There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10 inhabited structures	w There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5 inhabited structures	w There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0 inhabited structures	w There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
POPULATION NEAR HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classification in the space provided.

There are greater than 26 inhabited structures within 2 miles from the boundary of the MRS. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 8

EHE Module: Types of Activities/Structures Data Element Table

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with **all** the activities/structure classifications at the MRS.

Note: The term *inhabited structure* is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, educational, commercial, or subsistence	▪ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	5
Parks and recreational areas	▪ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	▪ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	3
Industrial or warehousing	▪ Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	2
No known or recurring activities	▪ There are no known or recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	1
TYPES OF ACTIVITIES/STRUCTURES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Types of Activities/Structures*** classifications in the space provided.

The MRS is used for agricultural purposes (pasture land) and surrounding property is part of the Pat Mayse WMA. Residential properties are located within 2 miles of the MRS. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 9

EHE Module: Ecological and/or Cultural Resources Data Element Table

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms *ecological resources* and *cultural resources* are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and cultural resources present	w There are both ecological and cultural resources present on the MRS.	5
Ecological resources present	w There are ecological resources present on the MRS.	3
Cultural resources present	w There are cultural resources present on the MRS.	3
No ecological or cultural resources present	w There are no ecological resources or cultural resources present on the MRS.	0
ECOLOGICAL AND/OR CULTURAL RESOURCES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ecological and/or Cultural Resources*** classification in the space provided.

While several threatened and endangered species are known to inhabit the area in and around Lamar County, there are no known cultural or ecological resources present at the MRS. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 10
Determining the EHE Module Rating

DIRECTIONS:

1. From Tables 1–9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.
4. Circle the appropriate range for the **EHE Module Total** below.
5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
Explosive Hazard Factor Data Elements			
Munitions Type	Table 1	0	10
Source of Hazard	Table 2	10	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	0	15
Ease of Access	Table 4	10	
Status of Property	Table 5	5	
Receptor Factor Data Elements			
Population Density	Table 6	1	11
Population Near Hazard	Table 7	5	
Types of Activities/Structures	Table 8	5	
Ecological and/or Cultural Resources	Table 9	0	
EHE MODULE TOTAL			36

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE MODULE RATING	**G**

Table 11

CHE Module: CWM Configuration Data Element Table

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with **all** the CWM configurations known or suspected to be present at the MRS.

Note: The terms *CWM/UXO, CWM/DMM, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, that are either UXO, or explosively configured damaged DMM	The CWM known or suspected of being present at the MRS are: w CWM that are UXO (i.e., CWM/UXO) w Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	30
CWM mixed with UXO	w The CWM known or suspected of being present at the MRS are undamaged CWM/DMM or CWM not configured as a munition that are commingled with conventional munitions that are UXO.	25
CWM, explosive configuration that are undamaged DMM	w The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM that have not been damaged.	20
CWM/DMM, not explosively configured or CWM, bulk container	The CWM known or suspected of being present at the MRS are: w Nonexplosively configured CWM/DMM either damaged or undamaged w Bulk CWM (e.g., ton container).	15
CAIS K941 and CAIS K942	w The CWM/DMM known or suspected of being present at the MRS are CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	12
CAIS (chemical agent identification sets)	w CAIS, other than CAIS K941 and K942, are known or suspected of being present at the MRS.	10
Evidence of no CWM	w Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	0
CWM CONFIGURATION	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	0

DIRECTIONS: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space provided.

There is no historical evidence that CWM was ever used at Camp Maxey. (RI/FS Report [EOTI, 2014]; Section 6.1.3)

Tables 12-19

No known or suspected CWM hazard is expected at this site. Therefore, Tables 12 through 19 have been intentionally omitted according to Active Army Guidance.

Table 20

Determining the CHE Module Rating

DIRECTIONS:

1. From Tables 11–19, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **CHE Module Total** box below.
4. Circle the appropriate range for the **CHE Module Total** below.
5. Circle the **CHE Module Rating** that corresponds to the range selected and record this value in the **CHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
CWM Hazard Factor Data Elements			
CWM Configuration	Table 11	0	0
Sources of CWM	Table 12	--	
Accessibility Factor Data Elements			
Location of CWM	Table 13	--	--
Ease of Access	Table 14	--	
Status of Property	Table 15	--	
Receptor Factor Data Elements			
Population Density	Table 16	--	--
Population Near Hazard	Table 17	--	
Types of Activities/Structures	Table 18	--	
Ecological and/or Cultural Resources	Table 19	--	
CHE MODULE TOTAL			0

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected CWM Hazard
CHE MODULE RATING	**No Known or Suspected CWM Hazard**

Table 21

HHE Module: Groundwater Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
Groundwater samples were not collected.			
CHF Scale	**CHF Value**	**Sum The Ratios**	
CHF > 100	**H (High)**	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **<u>the CHF Value</u>** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **<u>the single highest value</u>** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **<u>the single highest value</u>** from above in the box to the right (maximum value = H).	

No Known or Suspected Groundwater MC Hazard	q

Table 22

HHE Module: Surface Water – Human Endpoint Data Element Table

<u>Contaminant Hazard Factor (CHF)</u>

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (μg/L)	Comparison Value (μg/L)	Ratios
Surface water samples were not collected.			

CHF Scale	CHF Value	Sum The Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **<u>the CHF Value</u>** from above in the box to the right (maximum value = H).		

<u>Migratory Pathway Factor</u>

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **<u>the single highest value</u>** from above in the box to the right (maximum value = H).	

<u>Receptor Factor</u>

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **<u>the single highest value</u>** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Water (Human Endpoint) MC Hazard q

Table 23

HHE Module: Sediment – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the sediment, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
Sediment Samples were not collected			

CHF Scale	CHF Value	Sum The Ratios	
CHF > 100	H (High)		
100 > CHF > 2	M (Medium)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$	
2 > CHF	L (Low)		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right maximum value = H).	

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Sediment (Human Endpoint) MC Hazard q

Table 24

HHE Module: Surface Water – Ecological Endpoint Data Element Table

<u>Contaminant Hazard Factor (CHF)</u>

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/L)	Comparison Value (mg/L)	Ratios
Surface water samples were not collected.			
CHF Scale	**CHF Value**	**Sum the Ratios**	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **<u>the CHF Value</u>** from above in the box to the right (maximum value = H).		

<u>Migratory Pathway Factor</u>

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **<u>the single highest value</u>** from above in the box to the right (maximum value = H).	

<u>Receptor Factor</u>

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **<u>the single highest value</u>** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Water (Ecological Endpoint) MC Hazard q

Table 25

HHE Module: Sediment – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the sediment, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
Sediment samples were not collected.			

CHF Scale	CHF Value	Sum the Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Sediment (Ecological Endpoint) MC Hazard q

Table 26

HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface soil and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface soil contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the surface soil, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratio
No surface soil samples were collected from the MRS. All analytical data detected below levels of concern in other areas of the Former Camp Maxey. There is no human health or ecological risk associated with MC.			

CHF Scale	CHF Value	Sum the Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface soil to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Soil MC Hazard q

Table 27

HHE Module: Supplemental Contaminant Hazard Factor Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the **media** in which these contaminants are present. Then record all **contaminants**, their **maximum concentrations** and their **comparison values** (from Appendix B of the Primer) in the table below. Calculate and record the **ratio** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28

Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the **Contaminant Hazard**, **Migration Pathway**, and **Receptor Factors** for the media (from Tables 21–26) in the corresponding boxes below.
2. Record the media's three-letter combinations in the **Three-Letter Combination** boxes below (three-letter combinations are arranged from Hs to Ms to Ls).
3. Using the **HHE Ratings** provided below, determine each media's rating (A–G) and record the letter in the corresponding **Media Rating** box below.

Media (Source)	Contaminant Hazard Factor Value	Migratory Pathway Factor Value	Receptor Factor Value	Three-Letter Combination (Hs-Ms-Ls)	Media Rating (A-G)
Groundwater (Table 21)	--	--	--	--	--
Surface Water/Human Endpoint (Table 22)	--	--	--	--	--
Sediment/Human Endpoint (Table 23)	--	--	--	--	--
Surface Water/Ecological Endpoint (Table 24)	--	--	--	--	--
Sediment/Ecological Endpoint (Table 25)	--	--	--	--	--
Surface Soil (Table 26)	--	--	--	--	--

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the **HHE Module Rating** box.

Note:

An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE MODULE RATING	--

HHE Ratings (for reference only)

Combination	Rating
HHH	A
HHM	B
HHL	C
HMM	C
HML	D
MMM	D
HLL	E
MML	E
MLL	F
LLL	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Priority

DIRECTIONS: In the chart below, circle the letter **rating** for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical **priority** for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the **MRS Priority or Alternative MRS Rating** at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
C	4	D	4	C	4
D	5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		No Longer Required	
No Known or Suspected Explosive Hazard		**No Known or Suspected CWM Hazard**		**No Known or Suspected MC Hazard**	
MRS PRIORITY or ALTERNATIVE MRS RATING				**8**	

Table A

MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the **MRS Summary**, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental nonmunitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Western Range Area B
Component: U.S. Army

Installation/Property Name: Camp Maxey FUDS

Location (City, County, State): Paris, Lamar County, TX

Site Name/Project Name (Project No.): Former Camp Maxey (K06TX0305) **PRDF/FRMD**:____________________

Date Information Entered/Updated: December 2013

Point of Contact (Name/Phone): Layne Young (410.332.4806)

Project Phase (check only one): RI/FS

q PA	q SI	ü RI	ü FS	q RD
q RA-C	q RIP	q RA-O	q RC	q LTM

Note: This Draft MRSPP was created in coordination with the U.S. Army Corps of Engineers and additional project stakeholders. Prior to being finalized the MRSPP will be included in a public notice and will be available for public review.

Media Evaluated (check all that apply):.

q Groundwater	q Sediment (human receptor)
q Surface soil	q Surface Water (ecological receptor)
q Sediment (ecological receptor)	q Surface Water (human receptor)

MRS Summary:

MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:

This MRS includes 2,166 acres located in the western portion of Camp Maxey and included portions of several artillery range fans. It is located primarily within a wildlife management area that is Government owned but accessed by the public for surface recreational activities, such as hiking and hunting. It is a noncontiguous area located east Western Range Area A and along the north and east side of the lake within the West Range Area. No MEC was identified during the RI or during previous investigations. The MRS primarily includes area with low MD density. This may indicate that it was on the edge of the main impact/target area. (RI/FS Report [EOTI, 2014]; Table 4-1)

Description of Pathways for Human and Ecological Receptors:
Potentially complete pathways exist for recreational users, outdoor site workers, and biota for MEC in the surface and subsurface. Incomplete pathways exist for all human and ecological receptors for MC. (RI/FS Report [EOTI, 2014]; Section 5.1.2)

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond with **all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	W UXO that are considered most likely to function upon any interaction with exposed persons (e.g., submunitions, 40mm high-explosive [HE] grenades, white phosphorus [WP] munitions, high-explosive antitank [HEAT] munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions). W Hand grenades containing energetic filler. W Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard.	30
High explosive (used or damaged)	W UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered "sensitive." W DMM containing a high-explosive filler that have: § Been damaged by burning or detonation § Deteriorated to the point of instability.	25
Pyrotechnic (used or damaged)	W UXO containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades). W DMM containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades) that have: § Been damaged by burning or detonation § Deteriorated to the point of instability.	20
High explosive (unused)	W DMM containing a high-explosive filler that: § Have not been damaged by burning or detonation § Are not deteriorated to the point of instability.	15
Propellant	W UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). W DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: § Damaged by burning or detonation § Deteriorated to the point of instability.	15
Bulk secondary high explosives, pyrotechnics, or propellant	W DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). W DMM that are bulk secondary high explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	10
Pyrotechnic (not used or damaged)	W DMM containing a pyrotechnic filler (i.e., red phosphorus), other than white phosphorus filler, that: § Have not been damaged by burning or detonation § Are not deteriorated to the point of instability.	10
Practice	W UXO that are practice munitions that are not associated with a sensitive fuze. W DMM that are practice munitions that are not associated with a sensitive fuze and that have not: § Been damaged by burning or detonation § Deteriorated to the point of instability.	5
Riot control	W UXO or DMM containing a riot control agent filler (e.g., tear gas).	3
Small arms	W Used munitions or DMM that are categorized as small arms ammunition. (Physical evidence or historical evidence that no other types of munitions [e.g., grenades, subcaliber training rockets, demolition charges] were used or are present on the MRS is required for selection of this category.)	2
Evidence of no munitions	W Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
MUNITIONS TYPE	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	**25**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

Suspected munitions include 75mm, 90mm, and 105mm projectiles. (RI/FS Report [EOTI, 2014]; Table 4-1)

Table 2

EHE Module: Source of Hazard Data Element Table

DIRECTIONS: Below are 11 classifications describing sources of explosive hazards. Circle the scores that correspond with **all** the sources of explosive hazards known or suspected to be present at the MRS.

Note: The terms *former range, practice munitions, small arms range, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former range	w The MRS is a former military range where munitions (including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas and associated buffer and safety zones.	10
Former munitions treatment (i.e., OB/OD) unit	w The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	8
Former practice munitions range	w The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	6
Former maneuver area	w The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	5
Former burial pit or other disposal area	w The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a water body) without prior thermal treatment.	5
Former industrial operating facilities	w The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	4
Former firing points	w The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of a former military range.	4
Former missile or air defense artillery emplacements	w The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	2
Former storage or transfer points	w The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	2
Former small arms range	w The MRS is a former military range where only small arms ammunition was used. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present to place an MRS into this category.)	1
Evidence of no munitions	w Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	0
SOURCE OF HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	10

DIRECTIONS: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

Numerous ranges overlap all or portions of the MRS. (RI/FS Report [EOTI, 2014]; Table 4-1)

Table 3

EHE Module: Location of Munitions Data Element Table

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.

Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed surface	W Physical evidence indicates that there are UXO or DMM on the surface of the MRS. W Historical evidence (i.e., a confirmed report such as an explosive ordnance disposal [EOD], police, or fire department report that an incident or accident that involved UXO or DMM occurred) indicates there are UXO or DMM on the surface of the MRS.	25
Confirmed subsurface, active	W Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. W Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	20
Confirmed subsurface, stable	W Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed. W Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed.	15
Suspected (physical evidence)	W There is physical evidence (e.g., munitions debris such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	10
Suspected (historical evidence)	W There is historical evidence indicating that UXO or DMM may be present at the MRS.	5
Subsurface, physical constraint	W There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	2
Small arms (regardless of location)	W The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present at the MRS to place an MRS into this category.)	1
Evidence of no munitions	W Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
LOCATION OF MUNITIONS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	**10**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

MD associated with 75mm, 90mm, and 105mm projectiles have been found at the MRS. (RI/FS Report [EOTI, 2014]; Section 1.5)

Table 4
EHE Module: Ease of Access Data Element Table

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS.
Note: The term *barrier* is defined in Appendix C of the Primer.

Classification	Description	Score
No barrier	w There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	10
Barrier to MRS access is incomplete	w There is a barrier preventing access to parts of the MRS, but not the entire MRS.	8
Barrier to MRS access is complete but not monitored	w There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5
Barrier to MRS access is complete and monitored	w There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	0
EASE OF ACCESS	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 10).	**10**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ease of Access*** classification in the space provided.

No barriers currently exist for the MRS. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 5
EHE Module: Status of Property Data Element Table

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD control	w The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal, or local governments; and land or water bodies managed by other federal agencies. w The MRS is at a location that is owned by DoD, but that DoD has leased to another entity and for which DoD does not control access 24 hours per day.	5
Scheduled for transfer from DoD control	w The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the Protocol is applied.	3
DoD control	w The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD must control access to the MRS 24 hours per day, every day of the calendar year.	0
STATUS OF PROPERTY	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 5).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Status of Property*** classification in the space provided.

The MRS is located on property owned by the USACE and managed by the State at Pat Mayse WMA. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 6
EHE Module: Population Density Data Element Table

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score.
Note: Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 persons per square mile	w There are more than 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	5
100–500 persons per square mile	w There are 100 to 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	3
< 100 persons per square mile	w There are fewer than 100 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	1
POPULATION DENSITY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	1

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Density*** classification in the space provided.

According to U.S. Census data, the population density for Lamar County, TX is 55 persons per square mile. (Lamar County QuickFacts [U.S. Census Bureau]; http://quickfacts.census.gov/qfd/states/48/48277.html).

Table 7
EHE Module: Population Near Hazard Data Element Table

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
26 or more inhabited structures	w There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	5
16 to 25 inhabited structures	w There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15 inhabited structures	w There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10 inhabited structures	w There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5 inhabited structures	w There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0 inhabited structures	w There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
POPULATION NEAR HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classification in the space provided.

There are greater than 26 inhabited structures within 2 miles from the boundary of the MRS. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 8

EHE Module: Types of Activities/Structures Data Element Table

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with **all** the activities/structure classifications at the MRS.

Note: The term *inhabited structure* is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, educational, commercial, or subsistence	w Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	5
Parks and recreational areas	w Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	w Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	3
Industrial or warehousing	w Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	2
No known or recurring activities	w There are no known or recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	1
TYPES OF ACTIVITIES/STRUCTURES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Types of Activities/Structures*** classifications in the space provided.

The MRS is part of the Pat Mayse WMA used for hunting and other recreational activities. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 9

EHE Module: Ecological and/or Cultural Resources Data Element Table

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms *ecological resources* and *cultural resources* are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and cultural resources present	w There are both ecological and cultural resources present on the MRS.	5
Ecological resources present	w There are ecological resources present on the MRS.	3
Cultural resources present	w There are cultural resources present on the MRS.	3
No ecological or cultural resources present	w There are no ecological resources or cultural resources present on the MRS.	0
ECOLOGICAL AND/OR CULTURAL RESOURCES	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 5).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ecological and/or Cultural Resources*** classification in the space provided.

While several threatened and endangered species are known to inhabit the area in and around Lamar County, there are no known cultural or ecological resources present at the MRS. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 10
Determining the EHE Module Rating

DIRECTIONS:

1. From Tables 1–9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.
4. Circle the appropriate range for the **EHE Module Total** below.
5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
Explosive Hazard Factor Data Elements			
Munitions Type	Table 1	25	35
Source of Hazard	Table 2	10	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	10	20
Ease of Access	Table 4	10	
Status of Property	Table 5	0	
Receptor Factor Data Elements			
Population Density	Table 6	1	11
Population Near Hazard	Table 7	5	
Types of Activities/Structures	Table 8	5	
Ecological and/or Cultural Resources	Table 9	0	
EHE MODULE TOTAL			66

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE MODULE RATING	**D**

Table 11

CHE Module: CWM Configuration Data Element Table

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with **all** the CWM configurations known or suspected to be present at the MRS.

Note: The terms *CWM/UXO, CWM/DMM, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, that are either UXO, or explosively configured damaged DMM	The CWM known or suspected of being present at the MRS are: w CWM that are UXO (i.e., CWM/UXO) w Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	30
CWM mixed with UXO	w The CWM known or suspected of being present at the MRS are undamaged CWM/DMM or CWM not configured as a munition that are commingled with conventional munitions that are UXO.	25
CWM, explosive configuration that are undamaged DMM	w The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM that have not been damaged.	20
CWM/DMM, not explosively configured or CWM, bulk container	The CWM known or suspected of being present at the MRS are: w Nonexplosively configured CWM/DMM either damaged or undamaged w Bulk CWM (e.g., ton container).	15
CAIS K941 and CAIS K942	w The CWM/DMM known or suspected of being present at the MRS are CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	12
CAIS (chemical agent identification sets)	w CAIS, other than CAIS K941 and K942, are known or suspected of being present at the MRS.	10
Evidence of no CWM	w Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	0
CWM CONFIGURATION	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	0

DIRECTIONS: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space provided.

There is no historical evidence that CWM was ever used at Camp Maxey. (RI/FS Report [EOTI, 2014]; Section 6.1.3)

Tables 12-19

No known or suspected CWM hazard is expected at this site. Therefore, Tables 12 through 19 have been intentionally omitted according to Active Army Guidance.

Table 20

Determining the CHE Module Rating

DIRECTIONS:

1. From Tables 11–19, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **CHE Module Total** box below.
4. Circle the appropriate range for the **CHE Module Total** below.
5. Circle the **CHE Module Rating** that corresponds to the range selected and record this value in the **CHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
CWM Hazard Factor Data Elements			
CWM Configuration	Table 11	0	0
Sources of CWM	Table 12	--	
Accessibility Factor Data Elements			
Location of CWM	Table 13	--	--
Ease of Access	Table 14	--	
Status of Property	Table 15	--	
Receptor Factor Data Elements			
Population Density	Table 16	--	--
Population Near Hazard	Table 17	--	
Types of Activities/Structures	Table 18	--	
Ecological and/or Cultural Resources	Table 19	--	
CHE MODULE TOTAL			0

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected CWM Hazard
CHE MODULE RATING	**No Known or Suspected CWM Hazard**

Table 21

HHE Module: Groundwater Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/L)	Comparison Value (mg/L)	Ratios
Groundwater samples were not collected.			
CHF Scale	**CHF Value**	**Sum The Ratios**	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Groundwater MC Hazard q

Table 22

HHE Module: Surface Water – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (μg/L)	Comparison Value (μg/L)	Ratios
Surface water samples were not collected.			

CHF Scale	CHF Value	Sum The Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Water (Human Endpoint) MC Hazard q

Table 23

HHE Module: Sediment – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the sediment, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
Sediment Samples were not collected			

CHF Scale	CHF Value	Sum The Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Sediment (Human Endpoint) MC Hazard q

Table 24

HHE Module: Surface Water – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (μg/L)	Comparison Value (μg/L)	Ratios
Surface water samples were not collected.			
CHF Scale	**CHF Value**	**Sum the Ratios**	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Water (Ecological Endpoint) MC Hazard	q

Table 25

HHE Module: Sediment – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the sediment, select the box at the bottom of the table.

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Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
Sediment samples were not collected.			

CHF Scale	CHF Value	Sum the Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Sediment (Ecological Endpoint) MC Hazard q

Table 26

HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface soil and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface soil contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the surface soil, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratio
No surface soil samples were collected from the MRS. All analytical data detected below levels of concern in other areas of the Former Camp Maxey. There is no human health or ecological risk associated with MC.			

CHF Scale	CHF Value	Sum the Ratios	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface soil to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Soil MC Hazard q

Table 27

HHE Module: Supplemental Contaminant Hazard Factor Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the **media** in which these contaminants are present. Then record all **contaminants**, their **maximum concentrations** and their **comparison values** (from Appendix B of the Primer) in the table below. Calculate and record the **ratio** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28
Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the **Contaminant Hazard**, **Migration Pathway**, and **Receptor Factors** for the media (from Tables 21–26) in the corresponding boxes below.
2. Record the media's three-letter combinations in the **Three-Letter Combination** boxes below (three-letter combinations are arranged from Hs to Ms to Ls).
3. Using the **HHE Ratings** provided below, determine each media's rating (A–G) and record the letter in the corresponding **Media Rating** box below.

Media (Source)	Contaminant Hazard Factor Value	Migratory Pathway Factor Value	Receptor Factor Value		Three-Letter Combination (Hs-Ms-Ls)		Media Rating (A-G)
Groundwater (Table 21)	--	--	--		--		--
Surface Water/Human Endpoint (Table 22)	--	--	--		--		--
Sediment/Human Endpoint (Table 23)	--	--	--		--		--
Surface Water/Ecological Endpoint (Table 24)	--	--	--		--		--
Sediment/Ecological Endpoint (Table 25)	--	--	--		--		--
Surface Soil (Table 26)	--	--	--		--		--

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the **HHE Module Rating** box.

Note:

An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE MODULE RATING	--

HHE Ratings (for reference only)

Combination	Rating
HHH	A
HHM	B
HHL	C
HMM	C
HML	D
MMM	D
HLL	E
MML	E
MLL	F
LLL	G
Alternative Module Ratings	Evaluation Pending
Alternative Module Ratings	No Longer Required
Alternative Module Ratings	**No Known or Suspected MC Hazard**

Table 29
MRS Priority

DIRECTIONS: In the chart below, circle the letter **rating** for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical **priority** for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the **MRS Priority or Alternative MRS Rating** at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	**1**		
A	**2**	**B**	**2**	**A**	**2**
B	**3**	**C**	**3**	**B**	**3**
C	**4**	**D**	**4**	**C**	**4**
D	**5**	**E**	**5**	**D**	**5**
E	**6**	**F**	**6**	**E**	**6**
F	**7**	**G**	**7**	**F**	**7**
G	**8**			**G**	**8**
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		No Longer Required	
No Known or Suspected Explosive Hazard		**No Known or Suspected CWM Hazard**		**No Known or Suspected MC Hazard**	
MRS PRIORITY or ALTERNATIVE MRS RATING				**5**	

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the **MRS Summary**, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental nonmunitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Western Range Area C
Component: U.S. Army

Installation/Property Name: Camp Maxey FUDS

Location (City, County, State): Paris, Lamar County, TX

Site Name/Project Name (Project No.): Former Camp Maxey (K06TX0305) **PRDF/FRMD**:____________________

Date Information Entered/Updated: December 2013

Point of Contact (Name/Phone): Layne Young (410.332.4806)

Project Phase (check only one): RI/FS

q PA	q SI	ü RI	ü FS	q RD
q RA-C	q RIP	q RA-O	q RC	q LTM

Note: This Draft MRSPP was created in coordination with the U.S. Army Corps of Engineers and additional project stakeholders. Prior to being finalized the MRSPP will be included in a public notice and will be available for public review.

Media Evaluated (check all that apply):.

q Groundwater	q Sediment (human receptor)
ü Surface soil	q Surface Water (ecological receptor)
q Sediment (ecological receptor)	q Surface Water (human receptor)

MRS Summary:

MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:

This MRS includes 1,104 acres located in the North-Central and South-Central sections of the Western Range Area and consists of firing point and portions of artillery range fans located immediately adjacent to the central impact area. It is located within a wildlife management area that is Government owned but accessed by the public for recreational activities, such as hiking, camping, and hunting. No MEC was located in this MRS, however there are areas with medium and high MD densities that is consistent with potential target areas within impact areas. (RI/FS Report [EOTI, 2014]; Table 4-1)

Description of Pathways for Human and Ecological Receptors:
Potentially complete pathways exist for recreational used, outdoor site workers, and biota for MEC in the surface and subsurface. Incomplete pathways exist for all human and ecological receptors for MC. (RI/FS Report [EOTI, 2014]; Section 5.1.2)

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond with **all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	W UXO that are considered most likely to function upon any interaction with exposed persons (e.g., submunitions, 40mm high-explosive [HE] grenades, white phosphorus [WP] munitions, high-explosive antitank [HEAT] munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions). W Hand grenades containing energetic filler. W Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard.	30
High explosive (used or damaged)	W UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered "sensitive." W DMM containing a high-explosive filler that have: § Been damaged by burning or detonation § Deteriorated to the point of instability.	25
Pyrotechnic (used or damaged)	W UXO containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades). W DMM containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades) that have: § Been damaged by burning or detonation § Deteriorated to the point of instability.	20
High explosive (unused)	W DMM containing a high-explosive filler that: § Have not been damaged by burning or detonation § Are not deteriorated to the point of instability.	15
Propellant	W UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). W DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: § Damaged by burning or detonation § Deteriorated to the point of instability.	15
Bulk secondary high explosives, pyrotechnics, or propellant	W DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). W DMM that are bulk secondary high explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	10
Pyrotechnic (not used or damaged)	W DMM containing a pyrotechnic filler (i.e., red phosphorus), other than white phosphorus filler, that: § Have not been damaged by burning or detonation § Are not deteriorated to the point of instability.	10
Practice	W UXO that are practice munitions that are not associated with a sensitive fuze. W DMM that are practice munitions that are not associated with a sensitive fuze and that have not: § Been damaged by burning or detonation § Deteriorated to the point of instability.	5
Riot control	W UXO or DMM containing a riot control agent filler (e.g., tear gas).	3
Small arms	W Used munitions or DMM that are categorized as small arms ammunition. (Physical evidence or historical evidence that no other types of munitions [e.g., grenades, subcaliber training rockets, demolition charges] were used or are present on the MRS is required for selection of this category.)	2
Evidence of no munitions	W Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
MUNITIONS TYPE	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	25

DIRECTIONS: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

Suspected munitions include but are not limited to 75mm projectiles and rifle grenades. (RI/FS Report [EOTI, 2014]; Table 3-2)

Table 2

EHE Module: Source of Hazard Data Element Table

DIRECTIONS: Below are 11 classifications describing sources of explosive hazards. Circle the scores that correspond with **all** the sources of explosive hazards known or suspected to be present at the MRS.

Note: The terms *former range, practice munitions, small arms range, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former range	w The MRS is a former military range where munitions (including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas and associated buffer and safety zones.	10
Former munitions treatment (i.e., OB/OD) unit	w The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	8
Former practice munitions range	w The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	6
Former maneuver area	w The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	5
Former burial pit or other disposal area	w The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a water body) without prior thermal treatment.	5
Former industrial operating facilities	w The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	4
Former firing points	w The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of a former military range.	4
Former missile or air defense artillery emplacements	w The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	2
Former storage or transfer points	w The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	2
Former small arms range	w The MRS is a former military range where only small arms ammunition was used. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present to place an MRS into this category.)	1
Evidence of no munitions	w Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	0
SOURCE OF HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**10**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

Numerous ranges overlap all or portions of the MRS. (RI/FS Report [EOTI, 2014]; Section 1.4)

Table 3

EHE Module: Location of Munitions Data Element Table

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.

Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed surface	W Physical evidence indicates that there are UXO or DMM on the surface of the MRS. W Historical evidence (i.e., a confirmed report such as an explosive ordnance disposal [EOD], police, or fire department report that an incident or accident that involved UXO or DMM occurred) indicates there are UXO or DMM on the surface of the MRS.	25
Confirmed subsurface, active	W Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. W Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	20
Confirmed subsurface, stable	W Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed. W Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed.	15
Suspected (physical evidence)	W There is physical evidence (e.g., munitions debris such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	10
Suspected (historical evidence)	W There is historical evidence indicating that UXO or DMM may be present at the MRS.	5
Subsurface, physical constraint	W There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	2
Small arms (regardless of location)	W The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present at the MRS to place an MRS into this category.)	1
Evidence of no munitions	W Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
LOCATION OF MUNITIONS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	**10**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

MD associated with 75mm projectiles and rifle grenades have been found at the MRS. (RI/FS Report [EOTI, 2014]; Table 3-2)

Table 4

EHE Module: Ease of Access Data Element Table

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS.

Note: The term *barrier* is defined in Appendix C of the Primer.

Classification	Description	Score
No barrier	w There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	10
Barrier to MRS access is incomplete	w There is a barrier preventing access to parts of the MRS, but not the entire MRS.	8
Barrier to MRS access is complete but not monitored	w There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5
Barrier to MRS access is complete and monitored	w There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	0
EASE OF ACCESS	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 10).	**10**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ease of Access*** classification in the space provided.

No barriers currently exist for the MRS. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 5
EHE Module: Status of Property Data Element Table

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD control	w The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal, or local governments; and land or water bodies managed by other federal agencies. w The MRS is at a location that is owned by DoD, but that DoD has leased to another entity and for which DoD does not control access 24 hours per day.	5
Scheduled for transfer from DoD control	w The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the Protocol is applied.	3
DoD control	w The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD must control access to the MRS 24 hours per day, every day of the calendar year.	0
STATUS OF PROPERTY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Status of Property*** classification in the space provided.

The MRS is located on property owned by the USACE and managed by the State at Pat Mayse WMA. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 6

EHE Module: Population Density Data Element Table

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score.

Note: Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 persons per square mile	w There are more than 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	5
100–500 persons per square mile	w There are 100 to 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	3
< 100 persons per square mile	w There are fewer than 100 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	1
POPULATION DENSITY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	1

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Density*** classification in the space provided.

According to U.S. Census data, the population density for Lamar County, TX is 55 persons per square mile. (Lamar County QuickFacts [U.S. Census Bureau]; http://quickfacts.census.gov/qfd/states/48/48277.html)

Table 7

EHE Module: Population Near Hazard Data Element Table

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
26 or more inhabited structures	w There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	5
16 to 25 inhabited structures	w There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15 inhabited structures	w There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10 inhabited structures	w There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5 inhabited structures	w There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0 inhabited structures	w There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
POPULATION NEAR HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the Population Near Hazard classification in the space provided.

There are greater than 26 inhabited structures within 2 miles from the boundary of the MRS. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 8

EHE Module: Types of Activities/Structures Data Element Table

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with **all** the activities/structure classifications at the MRS.

Note: The term *inhabited structure* is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, educational, commercial, or subsistence	w Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	5
Parks and recreational areas	w Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	w Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	3
Industrial or warehousing	w Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	2
No known or recurring activities	w There are no known or recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	1
TYPES OF ACTIVITIES/STRUCTURES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the Types of Activities/Structures classifications in the space provided.

The MRS is part of the Pat Mayse WMA used for hunting and other recreational activities. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 9

EHE Module: Ecological and/or Cultural Resources Data Element Table

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms *ecological resources* and *cultural resources* are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and cultural resources present	w There are both ecological and cultural resources present on the MRS.	5
Ecological resources present	w There are ecological resources present on the MRS.	3
Cultural resources present	w There are cultural resources present on the MRS.	3
No ecological or cultural resources present	w There are no ecological resources or cultural resources present on the MRS.	0
ECOLOGICAL AND/OR CULTURAL RESOURCES	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 5).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the *Ecological and/or Cultural Resources* classification in the space provided.

While several threatened and endangered species are known to inhabit the area in and around Lamar County, there are no known cultural or ecological resources present at the MRS. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 10
Determining the EHE Module Rating

DIRECTIONS:

1. From Tables 1–9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.
4. Circle the appropriate range for the **EHE Module Total** below.
5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
Explosive Hazard Factor Data Elements			
Munitions Type	Table 1	25	35
Source of Hazard	Table 2	10	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	10	20
Ease of Access	Table 4	10	
Status of Property	Table 5	0	
Receptor Factor Data Elements			
Population Density	Table 6	1	11
Population Near Hazard	Table 7	5	
Types of Activities/Structures	Table 8	5	
Ecological and/or Cultural Resources	Table 9	0	
EHE MODULE TOTAL			66

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE MODULE RATING	**D**

Table 11
CHE Module: CWM Configuration Data Element Table

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with **all** the CWM configurations known or suspected to be present at the MRS.

Note: The terms *CWM/UXO, CWM/DMM, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, that are either UXO, or explosively configured damaged DMM	The CWM known or suspected of being present at the MRS are: w CWM that are UXO (i.e., CWM/UXO) w Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	30
CWM mixed with UXO	w The CWM known or suspected of being present at the MRS are undamaged CWM/DMM or CWM not configured as a munition that are commingled with conventional munitions that are UXO.	25
CWM, explosive configuration that are undamaged DMM	w The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM that have not been damaged.	20
CWM/DMM, not explosively configured or CWM, bulk container	The CWM known or suspected of being present at the MRS are: w Nonexplosively configured CWM/DMM either damaged or undamaged w Bulk CWM (e.g., ton container).	15
CAIS K941 and CAIS K942	w The CWM/DMM known or suspected of being present at the MRS are CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	12
CAIS (chemical agent identification sets)	w CAIS, other than CAIS K941 and K942, are known or suspected of being present at the MRS.	10
Evidence of no CWM	w Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	0
CWM CONFIGURATION	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 30).	0

DIRECTIONS: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space provided.

There is no historical evidence that CWM was ever used at Camp Maxey. (RI/FS Report [EOTI, 2014]; Section 6.1.3)

Tables 12-19

No known or suspected CWM hazard is expected at this site. Therefore, Tables 12 through 19 have been intentionally omitted according to Active Army Guidance.

Table 20

Determining the CHE Module Rating

DIRECTIONS:

1. From Tables 11–19, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **CHE Module Total** box below.
4. Circle the appropriate range for the **CHE Module Total** below.
5. Circle the **CHE Module Rating** that corresponds to the range selected and record this value in the **CHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
CWM Hazard Factor Data Elements			
CWM Configuration	Table 11	0	0
Sources of CWM	Table 12	--	
Accessibility Factor Data Elements			
Location of CWM	Table 13	--	--
Ease of Access	Table 14	--	
Status of Property	Table 15	--	
Receptor Factor Data Elements			
Population Density	Table 16	--	--
Population Near Hazard	Table 17	--	
Types of Activities/Structures	Table 18	--	
Ecological and/or Cultural Resources	Table 19	--	
CHE MODULE TOTAL			0

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected CWM Hazard
CHE MODULE RATING	**No Known or Suspected CWM Hazard**

Table 21

HHE Module: Groundwater Data Element Table

<u>Contaminant Hazard Factor (CHF)</u>

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (μg/L)	Comparison Value (μg/L)	Ratios
Groundwater samples were not collected.			
CHF Scale	**CHF Value**	**Sum The Ratios**	
CHF > 100	**H (High)**	$$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **<u>the CHF Value</u>** from above in the box to the right (maximum value = H).		

<u>Migratory Pathway Factor</u>

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **<u>the single highest value</u>** from above in the box to the right (maximum value = H).	

<u>Receptor Factor</u>

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **<u>the single highest value</u>** from above in the box to the right (maximum value = H).	

No Known or Suspected Groundwater MC Hazard	q

Table 22

HHE Module: Surface Water – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/L)	Comparison Value (mg/L)	Ratios
Surface water samples were not collected.			

CHF Scale	CHF Value	Sum The Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Water (Human Endpoint) MC Hazard q

Table 23

HHE Module: Sediment – Human Endpoint Data Element Table

<u>Contaminant Hazard Factor (CHF)</u>

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the sediment, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
Sediment Samples were not collected			

CHF Scale	CHF Value	Sum The Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **<u>the CHF Value</u>** from above in the box to the right maximum value = H).	

<u>Migratory Pathway Factor</u>

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **<u>the single highest value</u>** from above in the box to the right (maximum value = H).	

<u>Receptor Factor</u>

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **<u>the single highest value</u>** from above in the box to the right (maximum value = H).	

No Known or Suspected Sediment (Human Endpoint) MC Hazard q

Table 24

HHE Module: Surface Water – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/L)	Comparison Value (mg/L)	Ratios
Surface water samples were not collected.			
CHF Scale	**CHF Value**	**Sum the Ratios**	
CHF > 100	**H (High)**		
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

$$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$$

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Water (Ecological Endpoint) MC Hazard q

Table 25

HHE Module: Sediment – Ecological Endpoint Data Element Table

<u>Contaminant Hazard Factor (CHF)</u>

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the sediment, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
Sediment samples were not collected.			

CHF Scale	CHF Value	Sum the Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **<u>the CHF Value</u>** from above in the box to the right (maximum value = H).		

<u>Migratory Pathway Factor</u>

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **<u>the single highest value</u>** from above in the box to the right (maximum value = H).	

<u>Receptor Factor</u>

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **<u>the single highest value</u>** from above in the box to the right (maximum value = H).	

No Known or Suspected Sediment (Ecological Endpoint) MC Hazard q

Table 26

HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface soil and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface soil contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the surface soil, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratio
All analytical data detected below levels of concern at this MRS and in other areas of the Former Camp Maxey. There is no human health or ecological risk associated with MC.			

CHF Scale	CHF Value	Sum the Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface soil to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Soil MC Hazard ü

Table 27

HHE Module: Supplemental Contaminant Hazard Factor Table

<u>Contaminant Hazard Factor (CHF)</u>

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the **media** in which these contaminants are present. Then record all **contaminants**, their **maximum concentrations** and their **comparison values** (from Appendix B of the Primer) in the table below. Calculate and record the **ratio** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28

Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the **Contaminant Hazard**, **Migration Pathway**, and **Receptor Factors** for the media (from Tables 21–26) in the corresponding boxes below.
2. Record the media's three-letter combinations in the **Three-Letter Combination** boxes below (three-letter combinations are arranged from Hs to Ms to Ls).
3. Using the **HHE Ratings** provided below, determine each media's rating (A–G) and record the letter in the corresponding **Media Rating** box below.

Media (Source)	Contaminant Hazard Factor Value	Migratory Pathway Factor Value	Receptor Factor Value	Three-Letter Combination (Hs-Ms-Ls)	Media Rating (A-G)
Groundwater (Table 21)	--	--	--	--	--
Surface Water/Human Endpoint (Table 22)	--	--	--	--	--
Sediment/Human Endpoint (Table 23)	--	--	--	--	--
Surface Water/Ecological Endpoint (Table 24)	--	--	--	--	--
Sediment/Ecological Endpoint (Table 25)	--	--	--	--	--
Surface Soil (Table 26)	--	--	--	--	No Known or Suspected MC Hazard

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the **HHE Module Rating** box.

Note:

An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE MODULE RATING	--

HHE Ratings (for reference only)

Combination	Rating
HHH	A
HHM	B
HHL	C
HMM	C
HML	D
MMM	D
HLL	E
MML	E
MLL	F
LLL	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Priority

DIRECTIONS: In the chart below, circle the letter **rating** for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical **priority** for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the **MRS Priority or Alternative MRS Rating** at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
C	4	D	4	C	4
D	5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		No Longer Required	
No Known or Suspected Explosive Hazard		**No Known or Suspected CWM Hazard**		**No Known or Suspected MC Hazard**	
MRS PRIORITY or ALTERNATIVE MRS RATING				**5**	

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the **MRS Summary**, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental nonmunitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Western Range Area D
Component: U.S. Army

Installation/Property Name: Camp Maxey FUDS

Location (City, County, State): Paris, Lamar County, TX

Site Name/Project Name (Project No.): Former Camp Maxey (K06TX0305) **PRDF/FRMD**:____________________

Date Information Entered/Updated: December 2013

Point of Contact (Name/Phone): Layne Young (410.332.4806)

Project Phase (check only one): RI/FS

q PA	q SI	ü RI	ü FS	q RD
q RA-C	q RIP	q RA-O	q RC	q LTM

Note: This Draft MRSPP was created in coordination with the U.S. Army Corps of Engineers and additional project stakeholders. Prior to being finalized the MRSPP will be included in a public notice and will be available for public review.

Media Evaluated (check all that apply):.

q Groundwater	q Sediment (human receptor)
ü Surface soil	q Surface Water (ecological receptor)
q Sediment (ecological receptor)	q Surface Water (human receptor)

MRS Summary:
MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:

This MRS includes 1,870 acres located in what is believed to be the central impact area for the west ranges. It is located within a wildlife management area that is Government owned but accessed by the public for recreational activities, such as hiking, camping, and hunting. RI results include UXO located on or just below the ground surface and several areas with high or medium MD density. (RI/FS Report [EOTI, 2014]; Table 4-1)

Description of Pathways for Human and Ecological Receptors:
Potentially complete pathways exist for recreational users, outdoor site workers, and biota for MEC in the surface and subsurface. Incomplete pathways exist for all human and ecological receptors for MC. (RI/FS Report [EOTI, 2014]; Section 5.1.2)

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond with **all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	W UXO that are considered most likely to function upon any interaction with exposed persons (e.g., submunitions, 40mm high-explosive [HE] grenades, white phosphorus [WP] munitions, high-explosive antitank [HEAT] munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions). W Hand grenades containing energetic filler. W Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard.	30
High explosive (used or damaged)	W UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered "sensitive." W DMM containing a high-explosive filler that have: § Been damaged by burning or detonation § Deteriorated to the point of instability.	25
Pyrotechnic (used or damaged)	W UXO containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades). W DMM containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades) that have: § Been damaged by burning or detonation § Deteriorated to the point of instability.	20
High explosive (unused)	W DMM containing a high-explosive filler that: § Have not been damaged by burning or detonation § Are not deteriorated to the point of instability.	15
Propellant	W UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). W DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: § Damaged by burning or detonation § Deteriorated to the point of instability.	15
Bulk secondary high explosives, pyrotechnics, or propellant	W DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). W DMM that are bulk secondary high explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	10
Pyrotechnic (not used or damaged)	W DMM containing a pyrotechnic filler (i.e., red phosphorus), other than white phosphorus filler, that: § Have not been damaged by burning or detonation § Are not deteriorated to the point of instability.	10
Practice	W UXO that are practice munitions that are not associated with a sensitive fuze. W DMM that are practice munitions that are not associated with a sensitive fuze and that have not: § Been damaged by burning or detonation § Deteriorated to the point of instability.	5
Riot control	W UXO or DMM containing a riot control agent filler (e.g., tear gas).	3
Small arms	W Used munitions or DMM that are categorized as small arms ammunition. (Physical evidence or historical evidence that no other types of munitions [e.g., grenades, subcaliber training rockets, demolition charges] were used or are present on the MRS is required for selection of this category.)	2
Evidence of no munitions	W Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
MUNITIONS TYPE	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	25

DIRECTIONS: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

16 UXO were found at the MRS during the RI to include 76mm APHE, 2,36-inch rockets, 155mm HE, and a 105mm smoke canister. (RI/FS Report [EOTI, 2014]; Table 3-2)

Table 2
EHE Module: Source of Hazard Data Element Table

DIRECTIONS: Below are 11 classifications describing sources of explosive hazards. Circle the scores that correspond with **all** the sources of explosive hazards known or suspected to be present at the MRS.

Note: The terms *former range, practice munitions, small arms range, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former range	w The MRS is a former military range where munitions (including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas and associated buffer and safety zones.	10
Former munitions treatment (i.e., OB/OD) unit	w The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	8
Former practice munitions range	w The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	6
Former maneuver area	w The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	5
Former burial pit or other disposal area	w The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a water body) without prior thermal treatment.	5
Former industrial operating facilities	w The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	4
Former firing points	w The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of a former military range.	4
Former missile or air defense artillery emplacements	w The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	2
Former storage or transfer points	w The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	2
Former small arms range	w The MRS is a former military range where only small arms ammunition was used. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present to place an MRS into this category.)	1
Evidence of no munitions	w Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	0
SOURCE OF HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	10

DIRECTIONS: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

Numerous ranges overlap all or portions of the MRS. (RI/FS Report [EOTI, 2014]; Table 4-1)

Table 3

EHE Module: Location of Munitions Data Element Table

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.

Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed surface	W Physical evidence indicates that there are UXO or DMM on the surface of the MRS. W Historical evidence (i.e., a confirmed report such as an explosive ordnance disposal [EOD], police, or fire department report that an incident or accident that involved UXO or DMM occurred) indicates there are UXO or DMM on the surface of the MRS.	25
Confirmed subsurface, active	W Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. W Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	20
Confirmed subsurface, stable	W Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed. W Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed.	15
Suspected (physical evidence)	W There is physical evidence (e.g., munitions debris such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	10
Suspected (historical evidence)	W There is historical evidence indicating that UXO or DMM may be present at the MRS.	5
Subsurface, physical constraint	W There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	2
Small arms (regardless of location)	W The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present at the MRS to place an MRS into this category.)	1
Evidence of no munitions	W Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
LOCATION OF MUNITIONS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	**25**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

UXO were found on the ground surface and in the subsurface during the RI. (RI/FS Report [EOTI, 2014]; Table 3-2)

Table 4
EHE Module: Ease of Access Data Element Table

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS.
Note: The term *barrier* is defined in Appendix C of the Primer.

Classification	Description	Score
No barrier	w There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	10
Barrier to MRS access is incomplete	w There is a barrier preventing access to parts of the MRS, but not the entire MRS.	8
Barrier to MRS access is complete but not monitored	w There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5
Barrier to MRS access is complete and monitored	w There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	0
EASE OF ACCESS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**10**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ease of Access*** classification in the space provided.

No barriers currently exist for the MRS. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 5
EHE Module: Status of Property Data Element Table

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD control	w The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal, or local governments; and land or water bodies managed by other federal agencies. w The MRS is at a location that is owned by DoD, but that DoD has leased to another entity and for which DoD does not control access 24 hours per day.	5
Scheduled for transfer from DoD control	w The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the Protocol is applied.	3
DoD control	w The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD must control access to the MRS 24 hours per day, every day of the calendar year.	0
STATUS OF PROPERTY	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 5).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Status of Property*** classification in the space provided.

The MRS is located on property owned by the USACE and managed by the State at Pat Mayse WMA. No barriers currently exist for the MRS. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 6

EHE Module: Population Density Data Element Table

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score.

Note: Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 persons per square mile	w There are more than 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	5
100–500 persons per square mile	w There are 100 to 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	3
< 100 persons per square mile	w There are fewer than 100 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	1
POPULATION DENSITY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**1**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Density*** classification in the space provided.

According to U.S. Census data, the population density for Lamar County, TX is 55 persons per square mile. (Lamar County QuickFacts [U.S. Census Bureau]; http://quickfacts.census.gov/qfd/states/48/48277.html)

Table 7

EHE Module: Population Near Hazard Data Element Table

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
26 or more inhabited structures	w There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	5
16 to 25 inhabited structures	w There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15 inhabited structures	w There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10 inhabited structures	w There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5 inhabited structures	w There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0 inhabited structures	w There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
POPULATION NEAR HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the **Population Near Hazard** classification in the space provided.

There are greater than 26 inhabited structures within 2 miles from the boundary of the MRS. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 8

EHE Module: Types of Activities/Structures Data Element Table

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with **all** the activities/structure classifications at the MRS.

Note: The term *inhabited structure* is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, educational, commercial, or subsistence	w Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	5
Parks and recreational areas	w Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	w Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	3
Industrial or warehousing	w Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	2
No known or recurring activities	w There are no known or recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	1
TYPES OF ACTIVITIES/STRUCTURES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Types of Activities/Structures*** classifications in the space provided.

The MRS is part of the Pat Mayse WMA used for hunting and other recreational activities. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 9

EHE Module: Ecological and/or Cultural Resources Data Element Table

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms *ecological resources* and *cultural resources* are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and cultural resources present	w There are both ecological and cultural resources present on the MRS.	5
Ecological resources present	w There are ecological resources present on the MRS.	3
Cultural resources present	w There are cultural resources present on the MRS.	3
No ecological or cultural resources present	w There are no ecological resources or cultural resources present on the MRS.	0
ECOLOGICAL AND/OR CULTURAL RESOURCES	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 5).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ecological and/or Cultural Resources*** classification in the space provided.

While several threatened and endangered species are known to inhabit the area in and around Lamar County, there are no known cultural or ecological resources present at the MRS. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 10
Determining the EHE Module Rating

DIRECTIONS:

1. From Tables 1–9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.
4. Circle the appropriate range for the **EHE Module Total** below.
5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
Explosive Hazard Factor Data Elements			
Munitions Type	Table 1	25	35
Source of Hazard	Table 2	10	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	25	35
Ease of Access	Table 4	10	
Status of Property	Table 5	0	
Receptor Factor Data Elements			
Population Density	Table 6	1	11
Population Near Hazard	Table 7	5	
Types of Activities/Structures	Table 8	5	
Ecological and/or Cultural Resources	Table 9	0	
EHE MODULE TOTAL			81

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE MODULE RATING	**C**

Table 11

CHE Module: CWM Configuration Data Element Table

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with **all** the CWM configurations known or suspected to be present at the MRS.

Note: The terms *CWM/UXO, CWM/DMM, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, that are either UXO, or explosively configured damaged DMM	The CWM known or suspected of being present at the MRS are: w CWM that are UXO (i.e., CWM/UXO) w Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	30
CWM mixed with UXO	w The CWM known or suspected of being present at the MRS are undamaged CWM/DMM or CWM not configured as a munition that are commingled with conventional munitions that are UXO.	25
CWM, explosive configuration that are undamaged DMM	w The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM that have not been damaged.	20
CWM/DMM, not explosively configured or CWM, bulk container	The CWM known or suspected of being present at the MRS are: w Nonexplosively configured CWM/DMM either damaged or undamaged w Bulk CWM (e.g., ton container).	15
CAIS K941 and CAIS K942	w The CWM/DMM known or suspected of being present at the MRS are CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	12
CAIS (chemical agent identification sets)	w CAIS, other than CAIS K941 and K942, are known or suspected of being present at the MRS.	10
Evidence of no CWM	w Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	0
CWM CONFIGURATION	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space provided.

There is no historical evidence that CWM was ever used at Camp Maxey. (RI/FS Report [EOTI, 2014]; Section 6.1.3)

Tables 12-19

No known or suspected CWM hazard is expected at this site. Therefore, Tables 12 through 19 have been intentionally omitted according to Active Army Guidance.

Table 20

Determining the CHE Module Rating

DIRECTIONS:

1. From Tables 11–19, record the data element scores in the **Score** boxes to the right.

2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.

3. Add the three **Value** boxes and record this number in the **CHE Module Total** box below.

4. Circle the appropriate range for the **CHE Module Total** below.

5. Circle the **CHE Module Rating** that corresponds to the range selected and record this value in the **CHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
CWM Hazard Factor Data Elements			
CWM Configuration	Table 11	0	0
Sources of CWM	Table 12	--	
Accessibility Factor Data Elements			
Location of CWM	Table 13	--	--
Ease of Access	Table 14	--	
Status of Property	Table 15	--	
Receptor Factor Data Elements			
Population Density	Table 16	--	--
Population Near Hazard	Table 17	--	
Types of Activities/Structures	Table 18	--	
Ecological and/or Cultural Resources	Table 19	--	
CHE MODULE TOTAL			0

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected CWM Hazard
CHE MODULE RATING	**No Known or Suspected CWM Hazard**

Table 21

HHE Module: Groundwater Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (ṁg/L)	Comparison Value (ṁg/L)	Ratios
Groundwater samples were not collected.			
CHF Scale	**CHF Value**	**Sum The Ratios**	
CHF > 100	**H (High)**		
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

$$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$$

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Groundwater MC Hazard q

Table 22

HHE Module: Surface Water – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/L)	Comparison Value (mg/L)	Ratios
Surface water samples were not collected.			

CHF Scale	CHF Value	Sum The Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Water (Human Endpoint) MC Hazard q

Table 23

HHE Module: Sediment – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the sediment, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
Sediment Samples were not collected			

CHF Scale	CHF Value	Sum The Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Sediment (Human Endpoint) MC Hazard q

Table 24

HHE Module: Surface Water – Ecological Endpoint Data Element Table

<u>Contaminant Hazard Factor (CHF)</u>

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	**Maximum Concentration (mg/L)**	**Comparison Value (mg/L)**	**Ratios**
Surface water samples were not collected.			
CHF Scale	**CHF Value**	**Sum the Ratios**	
CHF > 100	**H (High)**	$$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **<u>the CHF Value</u>** from above in the box to the right (maximum value = H).		

<u>Migratory Pathway Factor</u>

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	**Description**	**Value**
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **<u>the single highest value</u>** from above in the box to the right (maximum value = H).	

<u>Receptor Factor</u>

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	**Description**	**Value**
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **<u>the single highest value</u>** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Water (Ecological Endpoint) MC Hazard q

Table 25

HHE Module: Sediment – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the sediment, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
Sediment samples were not collected.			

CHF Scale	CHF Value	Sum the Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Sediment (Ecological Endpoint) MC Hazard q

Table 26

HHE Module: Surface Soil Data Element Table

<u>Contaminant Hazard Factor (CHF)</u>

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface soil and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface soil contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the surface soil, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratio
All analytical data detected below levels of concern at this MRS and in other areas of the Former Camp Maxey. There is no human health or ecological risk associated with MC.			

CHF Scale	CHF Value	Sum the Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **<u>the CHF Value</u>** from above in the box to the right (maximum value = H).		

<u>Migratory Pathway Factor</u>

DIRECTIONS: Circle the value that corresponds most closely to the surface soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **<u>the single highest value</u>** from above in the box to the right (maximum value = H).	

<u>Receptor Factor</u>

DIRECTIONS: Circle the value that corresponds most closely to the surface soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface soil to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **<u>the single highest value</u>** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Soil MC Hazard ü

Table 27

HHE Module: Supplemental Contaminant Hazard Factor Table

<u>**Contaminant Hazard Factor (CHF)**</u>

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the **media** in which these contaminants are present. Then record all **contaminants**, their **maximum concentrations** and their **comparison values** (from Appendix B of the Primer) in the table below. Calculate and record the **ratio** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28

Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the **Contaminant Hazard**, **Migration Pathway**, and **Receptor Factors** for the media (from Tables 21–26) in the corresponding boxes below.
2. Record the media's three-letter combinations in the **Three-Letter Combination** boxes below (three-letter combinations are arranged from Hs to Ms to Ls).
3. Using the **HHE Ratings** provided below, determine each media's rating (A–G) and record the letter in the corresponding **Media Rating** box below.

Media (Source)	Contaminant Hazard Factor Value	Migratory Pathway Factor Value	Receptor Factor Value	Three-Letter Combination (Hs-Ms-Ls)	Media Rating (A-G)
Groundwater (Table 21)	--	--	--	--	--
Surface Water/Human Endpoint (Table 22)	--	--	--	--	--
Sediment/Human Endpoint (Table 23)	--	--	--	--	--
Surface Water/Ecological Endpoint (Table 24)	--	--	--	--	--
Sediment/Ecological Endpoint (Table 25)	--	--	--	--	--
Surface Soil (Table 26)	--	--	--	--	No Known or Suspected MC Hazard

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the **HHE Module Rating** box.

Note:

An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE MODULE RATING	--

HHE Ratings (for reference only)

Combination	Rating
HHH	A
HHM	B
HHL	C
HMM	
HML	D
MMM	
HLL	E
MML	
MLL	F
LLL	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Priority

DIRECTIONS: In the chart below, circle the letter **rating** for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical **priority** for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the **MRS Priority or Alternative MRS Rating** at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
C	4	D	4	C	4
D	5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		No Longer Required	
No Known or Suspected Explosive Hazard		**No Known or Suspected CWM Hazard**		**No Known or Suspected MC Hazard**	
MRS PRIORITY or ALTERNATIVE MRS RATING				**C**	

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the **MRS Summary**, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental nonmunitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Western Range Area E
Component: U.S. Army

Installation/Property Name: Camp Maxey FUDS

Location (City, County, State): Paris, Lamar County, TX

Site Name/Project Name (Project No.): Former Camp Maxey (K06TX0305) **PRDF/FRMD**:____________________

Date Information Entered/Updated: December 2013

Point of Contact (Name/Phone): Layne Young (410.332.4806)

Project Phase (check only one): RI/FS

q PA	q SI	ü RI	ü FS	q RD
q RA-C	q RIP	q RA-O	q RC	q LTM

Note: This Draft MRSPP was created in coordination with the U.S. Army Corps of Engineers and additional project stakeholders. Prior to being finalized the MRSPP will be included in a public notice and will be available for public review.

Media Evaluated (check all that apply):.

q Groundwater	q Sediment (human receptor)
q Surface soil	q Surface Water (ecological receptor)
q Sediment (ecological receptor)	q Surface Water (human receptor)

MRS Summary:
MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:

This MRS includes 133 acres of private, undeveloped property in the southern portion of the West Range Area. Access was not provided to this area during the RI. Additional data is required for site characterization. (RI/FS Report [EOTI, 2014]; Table 4-1)

Description of Pathways for Human and Ecological Receptors:
Potentially complete pathways exist for residents, trespassers, recreational users, outdoor site workers, and biota for MEC in the surface and subsurface. Incomplete pathways exist for all human and ecological receptors for MC. (RI/FS Report [EOTI, 2014]; Section 5.1.2)

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond with **all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	W UXO that are considered most likely to function upon any interaction with exposed persons (e.g., submunitions, 40mm high-explosive [HE] grenades, white phosphorus [WP] munitions, high-explosive antitank [HEAT] munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions). W Hand grenades containing energetic filler. W Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard.	30
High explosive (used or damaged)	W UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered "sensitive." W DMM containing a high-explosive filler that have: § Been damaged by burning or detonation § Deteriorated to the point of instability.	25
Pyrotechnic (used or damaged)	W UXO containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades). W DMM containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades) that have: § Been damaged by burning or detonation § Deteriorated to the point of instability.	20
High explosive (unused)	W DMM containing a high-explosive filler that: § Have not been damaged by burning or detonation § Are not deteriorated to the point of instability.	15
Propellant	W UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). W DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: § Damaged by burning or detonation § Deteriorated to the point of instability.	15
Bulk secondary high explosives, pyrotechnics, or propellant	W DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). W DMM that are bulk secondary high explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	10
Pyrotechnic (not used or damaged)	W DMM containing a pyrotechnic filler (i.e., red phosphorus), other than white phosphorus filler, that: § Have not been damaged by burning or detonation § Are not deteriorated to the point of instability.	10
Practice	W UXO that are practice munitions that are not associated with a sensitive fuze. W DMM that are practice munitions that are not associated with a sensitive fuze and that have not: § Been damaged by burning or detonation § Deteriorated to the point of instability.	5
Riot control	W UXO or DMM containing a riot control agent filler (e.g., tear gas).	3
Small arms	W Used munitions or DMM that are categorized as small arms ammunition. (Physical evidence or historical evidence that no other types of munitions [e.g., grenades, subcaliber training rockets, demolition charges] were used or are present on the MRS is required for selection of this category.)	2
Evidence of no munitions	W Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
MUNITIONS TYPE	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	25

DIRECTIONS: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

While no UXO has been found at this MRS, it is located within the boundaries of numerous HE ranges and munitions debris has been found. (RI/FS Report [EOTI, 2014]; Section 1.5

Table 2

EHE Module: Source of Hazard Data Element Table

DIRECTIONS: Below are 11 classifications describing sources of explosive hazards. Circle the scores that correspond with **all** the sources of explosive hazards known or suspected to be present at the MRS.

Note: The terms *former range, practice munitions, small arms range, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former range	w The MRS is a former military range where munitions (including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas and associated buffer and safety zones.	10
Former munitions treatment (i.e., OB/OD) unit	w The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	8
Former practice munitions range	w The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	6
Former maneuver area	w The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	5
Former burial pit or other disposal area	w The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a water body) without prior thermal treatment.	5
Former industrial operating facilities	w The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	4
Former firing points	w The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of a former military range.	4
Former missile or air defense artillery emplacements	w The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	2
Former storage or transfer points	w The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	2
Former small arms range	w The MRS is a former military range where only small arms ammunition was used. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present to place an MRS into this category.)	1
Evidence of no munitions	w Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	0
SOURCE OF HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**10**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

Numerous ranges overlap all or portions of the MRS. (RI/FS Report [EOTI, 2014]; Section 1.5)

Table 3

EHE Module: Location of Munitions Data Element Table

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.

Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed surface	W Physical evidence indicates that there are UXO or DMM on the surface of the MRS. W Historical evidence (i.e., a confirmed report such as an explosive ordnance disposal [EOD], police, or fire department report that an incident or accident that involved UXO or DMM occurred) indicates there are UXO or DMM on the surface of the MRS.	25
Confirmed subsurface, active	W Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. W Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	20
Confirmed subsurface, stable	W Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed. W Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed.	15
Suspected (physical evidence)	W There is physical evidence (e.g., munitions debris such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	10
Suspected (historical evidence)	W There is historical evidence indicating that UXO or DMM may be present at the MRS.	5
Subsurface, physical constraint	W There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	2
Small arms (regardless of location)	W The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present at the MRS to place an MRS into this category.)	1
Evidence of no munitions	W Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
LOCATION OF MUNITIONS	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 25).	**10**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

While no UXO has been found at this MRS, it is located within the boundaries of numerous HE ranges and munitions debris has been found. (RI/FS Report [EOTI, 2014]; Section 1.5)

Table 4
EHE Module: Ease of Access Data Element Table

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS.
Note: The term *barrier* is defined in Appendix C of the Primer.

Classification	Description	Score
No barrier	w There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	10
Barrier to MRS access is incomplete	w There is a barrier preventing access to parts of the MRS, but not the entire MRS.	8
Barrier to MRS access is complete but not monitored	w There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5
Barrier to MRS access is complete and monitored	w There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	0
EASE OF ACCESS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**10**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ease of Access*** classification in the space provided.

No barriers currently exist for the MRS**.** (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 5
EHE Module: Status of Property Data Element Table

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD control	w The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal, or local governments; and land or water bodies managed by other federal agencies. w The MRS is at a location that is owned by DoD, but that DoD has leased to another entity and for which DoD does not control access 24 hours per day.	5
Scheduled for transfer from DoD control	w The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the Protocol is applied.	3
DoD control	w The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD must control access to the MRS 24 hours per day, every day of the calendar year.	0
STATUS OF PROPERTY	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Status of Property*** classification in the space provided.

The MRS is located on privately owned property. (RI/FS Report [EOTI, 2014]; Table 4-1)

Table 6
EHE Module: Population Density Data Element Table

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score.

Note: Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 persons per square mile	w There are more than 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	5
100–500 persons per square mile	w There are 100 to 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	3
< 100 persons per square mile	w There are fewer than 100 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	1
POPULATION DENSITY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**1**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Density*** classification in the space provided.

According to U.S. Census data, the population density for Lamar County, TX is 55 persons per square mile. (Lamar County QuickFacts [U.S. Census Bureau]; http://quickfacts.census.gov/qfd/states/48/48277.html)

Table 7

EHE Module: Population Near Hazard Data Element Table

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
26 or more inhabited structures	w There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	5
16 to 25 inhabited structures	w There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15 inhabited structures	w There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10 inhabited structures	w There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5 inhabited structures	w There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0 inhabited structures	w There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
POPULATION NEAR HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the **Population Near Hazard** classification in the space provided.

There are greater than 26 inhabited structures within 2 miles from the boundary of the MRS. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 8

EHE Module: Types of Activities/Structures Data Element Table

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with **all** the activities/structure classifications at the MRS.

Note: The term *inhabited structure* is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, educational, commercial, or subsistence	w Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	5
Parks and recreational areas	w Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	w Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	3
Industrial or warehousing	w Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	2
No known or recurring activities	w There are no known or recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	1
TYPES OF ACTIVITIES/STRUCTURES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Types of Activities/Structures*** classifications in the space provided.

The MRS is mostly undeveloped forest land; however, surrounding property is part of the Pat Mayse WMA. Residential properties are located within 2 miles of the MRS. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 9
EHE Module: Ecological and/or Cultural Resources Data Element Table

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms *ecological resources* and *cultural resources* are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and cultural resources present	w There are both ecological and cultural resources present on the MRS.	5
Ecological resources present	w There are ecological resources present on the MRS.	3
Cultural resources present	w There are cultural resources present on the MRS.	3
No ecological or cultural resources present	w There are no ecological resources or cultural resources present on the MRS.	0
ECOLOGICAL AND/OR CULTURAL RESOURCES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ecological and/or Cultural Resources*** classification in the space provided.

While several threatened and endangered species are known to inhabit the area in and around Lamar County, there are no known cultural or ecological resources present at the MRS. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 10
Determining the EHE Module Rating

DIRECTIONS:

1. From Tables 1–9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.
4. Circle the appropriate range for the **EHE Module Total** below.
5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
Explosive Hazard Factor Data Elements			
Munitions Type	Table 1	25	35
Source of Hazard	Table 2	10	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	10	25
Ease of Access	Table 4	10	
Status of Property	Table 5	5	
Receptor Factor Data Elements			
Population Density	Table 6	1	11
Population Near Hazard	Table 7	5	
Types of Activities/Structures	Table 8	5	
Ecological and/or Cultural Resources	Table 9	0	
EHE MODULE TOTAL			71

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE MODULE RATING	**C**

Table 11
CHE Module: CWM Configuration Data Element Table

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with **all** the CWM configurations known or suspected to be present at the MRS.

Note: The terms *CWM/UXO, CWM/DMM, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, that are either UXO, or explosively configured damaged DMM	The CWM known or suspected of being present at the MRS are: w CWM that are UXO (i.e., CWM/UXO) w Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	30
CWM mixed with UXO	w The CWM known or suspected of being present at the MRS are undamaged CWM/DMM or CWM not configured as a munition that are commingled with conventional munitions that are UXO.	25
CWM, explosive configuration that are undamaged DMM	w The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM that have not been damaged.	20
CWM/DMM, not explosively configured or CWM, bulk container	The CWM known or suspected of being present at the MRS are: w Nonexplosively configured CWM/DMM either damaged or undamaged w Bulk CWM (e.g., ton container).	15
CAIS K941 and CAIS K942	w The CWM/DMM known or suspected of being present at the MRS are CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	12
CAIS (chemical agent identification sets)	w CAIS, other than CAIS K941 and K942, are known or suspected of being present at the MRS.	10
Evidence of no CWM	w Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	0
CWM CONFIGURATION	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	0

DIRECTIONS: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space provided.

There is no historical evidence that CWM was ever used at Camp Maxey. (RI/FS Report [EOTI, 2014]; Section 6.1.3)

Tables 12-19

No known or suspected CWM hazard is expected at this site. Therefore, Tables 12 through 19 have been intentionally omitted according to Active Army Guidance.

Table 20

Determining the CHE Module Rating

DIRECTIONS:

1. From Tables 11–19, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **CHE Module Total** box below.
4. Circle the appropriate range for the **CHE Module Total** below.
5. Circle the **CHE Module Rating** that corresponds to the range selected and record this value in the **CHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
CWM Hazard Factor Data Elements			
CWM Configuration	Table 11	0	0
Sources of CWM	Table 12	--	
Accessibility Factor Data Elements			
Location of CWM	Table 13	--	--
Ease of Access	Table 14	--	
Status of Property	Table 15	--	
Receptor Factor Data Elements			
Population Density	Table 16	--	--
Population Near Hazard	Table 17	--	
Types of Activities/Structures	Table 18	--	
Ecological and/or Cultural Resources	Table 19	--	
CHE MODULE TOTAL			0

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected CWM Hazard
CHE MODULE RATING	**No Known or Suspected CWM Hazard**

Table 21

HHE Module: Groundwater Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (μg/L)	Comparison Value (μg/L)	Ratios
Groundwater samples were not collected.			
CHF Scale	**CHF Value**	**Sum The Ratios**	
CHF > 100	**H (High)**		
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

$$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$$

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Groundwater MC Hazard q

Table 22

HHE Module: Surface Water – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (μg/L)	Comparison Value (μg/L)	Ratios
Surface water samples were not collected.			

CHF Scale	CHF Value	Sum The Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Water (Human Endpoint) MC Hazard q

Table 23

HHE Module: Sediment – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the sediment, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
Sediment Samples were not collected			

CHF Scale	CHF Value	Sum The Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Sediment (Human Endpoint) MC Hazard q

Table 24

HHE Module: Surface Water – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (μg/L)	Comparison Value (μg/L)	Ratios
Surface water samples were not collected.			
CHF Scale	**CHF Value**	**Sum the Ratios**	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Water (Ecological Endpoint) MC Hazard q

Table 25

HHE Module: Sediment – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the sediment, select the box at the bottom of the table.

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Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
Sediment samples were not collected.			

CHF Scale	CHF Value	Sum the Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Sediment (Ecological Endpoint) MC Hazard q

Table 26

HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface soil and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface soil contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the surface soil, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratio
No surface soil samples were collected from the MRS. All analytical data detected below levels of concern in other areas of the Former Camp Maxey. There is no human health or ecological risk associated with MC.			

CHF Scale	CHF Value	Sum the Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface soil to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Soil MC Hazard q

Table 27

HHE Module: Supplemental Contaminant Hazard Factor Table

<u>Contaminant Hazard Factor (CHF)</u>

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the **media** in which these contaminants are present. Then record all **contaminants**, their **maximum concentrations** and their **comparison values** (from Appendix B of the Primer) in the table below. Calculate and record the **ratio** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28

Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the **Contaminant Hazard**, **Migration Pathway**, and **Receptor Factors** for the media (from Tables 21–26) in the corresponding boxes below.
2. Record the media's three-letter combinations in the **Three-Letter Combination** boxes below (three-letter combinations are arranged from Hs to Ms to Ls).
3. Using the **HHE Ratings** provided below, determine each media's rating (A–G) and record the letter in the corresponding **Media Rating** box below.

Media (Source)	Contaminant Hazard Factor Value	Migratory Pathway Factor Value	Receptor Factor Value	Three-Letter Combination (Hs-Ms-Ls)	Media Rating (A-G)
Groundwater (Table 21)	--	--	--	--	--
Surface Water/Human Endpoint (Table 22)	--	--	--	--	--
Sediment/Human Endpoint (Table 23)	--	--	--	--	--
Surface Water/Ecological Endpoint (Table 24)	--	--	--	--	--
Sediment/Ecological Endpoint (Table 25)	--	--	--	--	--
Surface Soil (Table 26)	--	--	--	--	--

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the **HHE Module Rating** box.

Note:

An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE MODULE RATING	

<table>
<tr><th colspan="2">HHE Ratings (for reference only)</th></tr>
<tr><th>Combination</th><th>Rating</th></tr>
<tr><td>HHH</td><td>A</td></tr>
<tr><td>HHM</td><td>B</td></tr>
<tr><td>HHL</td><td rowspan="2">C</td></tr>
<tr><td>HMM</td></tr>
<tr><td>HML</td><td rowspan="2">D</td></tr>
<tr><td>MMM</td></tr>
<tr><td>HLL</td><td rowspan="2">E</td></tr>
<tr><td>MML</td></tr>
<tr><td>MLL</td><td>F</td></tr>
<tr><td>LLL</td><td>G</td></tr>
<tr><td rowspan="3">Alternative Module Ratings</td><td>Evaluation Pending</td></tr>
<tr><td>No Longer Required</td></tr>
<tr><td>No Known or Suspected MC Hazard</td></tr>
</table>

Table 29
MRS Priority

DIRECTIONS: In the chart below, circle the letter **rating** for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical **priority** for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the **MRS Priority or Alternative MRS Rating** at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	**1**		
A	**2**	**B**	**2**	**A**	**2**
B	**3**	**C**	**3**	**B**	**3**
C	**4**	**D**	**4**	**C**	**4**
D	**5**	**E**	**5**	**D**	**5**
E	**6**	**F**	**6**	**E**	**6**
F	**7**	**G**	**7**	**F**	**7**
G	**8**			**G**	**8**
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		No Longer Required	
No Known or Suspected Explosive Hazard		**No Known or Suspected CWM Hazard**		**No Known or Suspected MC Hazard**	
MRS PRIORITY or ALTERNATIVE MRS RATING				**4**	

Table A

MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the **MRS Summary**, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental nonmunitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Eastern Range Area A
Component: U.S. Army

Installation/Property Name: Camp Maxey FUDS

Location (City, County, State): Paris, Lamar County, TX

Site Name/Project Name (Project No.): Former Camp Maxey (K06TX0305) **PRDF/FRMD**:____________________

Date Information Entered/Updated: December 2013

Point of Contact (Name/Phone): Layne Young (410.332.4806)

Project Phase (check only one): RI/FS

q PA	q SI	ü RI	ü FS	q RD
q RA-C	q RIP	q RA-O	q RC	q LTM

Note: This Draft MRSPP was created in coordination with the U.S. Army Corps of Engineers and additional project stakeholders. Prior to being finalized the MRSPP will be included in a public notice and will be available for public review.

Media Evaluated (check all that apply):.

q Groundwater	q Sediment (human receptor)
ü Surface soil	q Surface Water (ecological receptor)
q Sediment (ecological receptor)	q Surface Water (human receptor)

MRS Summary:
MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:

This MRS includes 1,124 acres located along the North and East shore of the lake within the East Range Area. It includes area primarily within a state park, used for recreation, which may include activities such as camping, hiking and accessing the lake. It includes the dam area and former ranges that were investigated and partially cleared in a previous removal action. The previous removal action included the use of geophysical transects to locate potential former target areas and then selected grids were cleared in order to reduce the potential for exposure to MEC. No MEC was encountered in this MRS during the RI and only low concentrations of MD were identified. (RI/FS Report [EOTI, 2014]; Table 4-1)

Description of Pathways for Human and Ecological Receptors:
Potentially complete pathways exist for recreational users, outdoor site workers, and biota for MEC in the surface and subsurface. Incomplete pathways exist for all human and ecological receptors for MC. (RI/FS Report [EOTI, 2014]; Section 5.1.2)

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond with **all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	W UXO that are considered most likely to function upon any interaction with exposed persons (e.g., submunitions, 40mm high-explosive [HE] grenades, white phosphorus [WP] munitions, high-explosive antitank [HEAT] munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions). W Hand grenades containing energetic filler. W Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard.	30
High explosive (used or damaged)	W UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered "sensitive." W DMM containing a high-explosive filler that have: § Been damaged by burning or detonation § Deteriorated to the point of instability.	25
Pyrotechnic (used or damaged)	W UXO containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades). W DMM containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades) that have: § Been damaged by burning or detonation § Deteriorated to the point of instability.	20
High explosive (unused)	W DMM containing a high-explosive filler that: § Have not been damaged by burning or detonation § Are not deteriorated to the point of instability.	15
Propellant	W UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). W DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: § Damaged by burning or detonation § Deteriorated to the point of instability.	15
Bulk secondary high explosives, pyrotechnics, or propellant	W DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). W DMM that are bulk secondary high explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	10
Pyrotechnic (not used or damaged)	W DMM containing a pyrotechnic filler (i.e., red phosphorus), other than white phosphorus filler, that: § Have not been damaged by burning or detonation § Are not deteriorated to the point of instability.	10
Practice	W UXO that are practice munitions that are not associated with a sensitive fuze. W DMM that are practice munitions that are not associated with a sensitive fuze and that have not: § Been damaged by burning or detonation § Deteriorated to the point of instability.	5
Riot control	W UXO or DMM containing a riot control agent filler (e.g., tear gas).	3
Small arms	W Used munitions or DMM that are categorized as small arms ammunition. (Physical evidence or historical evidence that no other types of munitions [e.g., grenades, subcaliber training rockets, demolition charges] were used or are present on the MRS is required for selection of this category.)	2
Evidence of no munitions	W Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
MUNITIONS TYPE	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	**30**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

Numerous UXO has been found in the MRS to include 2.36-inch HEAT rockets, M9 rifle grenades, and MK II hand grenades. A 37mm projectile was found on the ground surface during the RI. (RI/FS Report [EOTI, 2014]; Table 3-2)

Table 2

EHE Module: Source of Hazard Data Element Table

DIRECTIONS: Below are 11 classifications describing sources of explosive hazards. Circle the scores that correspond with **all** the sources of explosive hazards known or suspected to be present at the MRS.

Note: The terms *former range, practice munitions, small arms range, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former range	w The MRS is a former military range where munitions (including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas and associated buffer and safety zones.	10
Former munitions treatment (i.e., OB/OD) unit	w The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	8
Former practice munitions range	w The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	6
Former maneuver area	w The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	5
Former burial pit or other disposal area	w The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a water body) without prior thermal treatment.	5
Former industrial operating facilities	w The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	4
Former firing points	w The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of a former military range.	4
Former missile or air defense artillery emplacements	w The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	2
Former storage or transfer points	w The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	2
Former small arms range	w The MRS is a former military range where only small arms ammunition was used. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present to place an MRS into this category.)	1
Evidence of no munitions	w Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	0
SOURCE OF HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**10**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

Numerous ranges overlap all or portions of the MRS. (RI/FS Report [EOTI, 2014]; Table 4-1)

Table 3

EHE Module: Location of Munitions Data Element Table

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.

Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed surface	W Physical evidence indicates that there are UXO or DMM on the surface of the MRS. W Historical evidence (i.e., a confirmed report such as an explosive ordnance disposal [EOD], police, or fire department report that an incident or accident that involved UXO or DMM occurred) indicates there are UXO or DMM on the surface of the MRS.	25
Confirmed subsurface, active	W Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. W Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	20
Confirmed subsurface, stable	W Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed. W Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed.	15
Suspected (physical evidence)	W There is physical evidence (e.g., munitions debris such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	10
Suspected (historical evidence)	W There is historical evidence indicating that UXO or DMM may be present at the MRS.	5
Subsurface, physical constraint	W There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	2
Small arms (regardless of location)	W The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present at the MRS to place an MRS into this category.)	1
Evidence of no munitions	W Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
LOCATION OF MUNITIONS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	**25**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

Throughout the years thousands of UXO have been found in on the surface and in the subsurface at the MRS. A 37mm projectile was found during the RI was on the ground surface. (RI/FS Report [EOTI, 2014]; Table 3-2)

Table 4

EHE Module: Ease of Access Data Element Table

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS.

Note: The term *barrier* is defined in Appendix C of the Primer.

Classification	Description	Score
No barrier	w There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	10
Barrier to MRS access is incomplete	w There is a barrier preventing access to parts of the MRS, but not the entire MRS.	8
Barrier to MRS access is complete but not monitored	w There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5
Barrier to MRS access is complete and monitored	w There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	0
EASE OF ACCESS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**10**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ease of Access*** classification in the space provided.

No barriers currently exist for the MRS. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 5
EHE Module: Status of Property Data Element Table

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD control	• The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal, or local governments; and land or water bodies managed by other federal agencies. • The MRS is at a location that is owned by DoD, but that DoD has leased to another entity and for which DoD does not control access 24 hours per day.	5
Scheduled for transfer from DoD control	• The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the Protocol is applied.	3
DoD control	• The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD must control access to the MRS 24 hours per day, every day of the calendar year.	0
STATUS OF PROPERTY	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Status of Property*** classification in the space provided.

The MRS is located on property owned and managed by the USACE. (RI/FS Report [EOTI, 2014]; Table 4-1)

Table 6
EHE Module: Population Density Data Element Table

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score.
Note: Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 persons per square mile	w There are more than 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	5
100–500 persons per square mile	w There are 100 to 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	3
< 100 persons per square mile	w There are fewer than 100 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	1
POPULATION DENSITY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**1**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Density*** classification in the space provided.

According to U.S. Census data, the population density for Lamar County, TX is 55 persons per square mile. (Lamar County QuickFacts [U.S. Census Bureau]; http://quickfacts.census.gov/qfd/states/48/48277.html)

Table 7
EHE Module: Population Near Hazard Data Element Table

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
26 or more inhabited structures	w There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	5
16 to 25 inhabited structures	w There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15 inhabited structures	w There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10 inhabited structures	w There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5 inhabited structures	w There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0 inhabited structures	w There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
POPULATION NEAR HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classification in the space provided.

There are greater than 26 inhabited structures within 2 miles from the boundary of the MRS. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 8

EHE Module: Types of Activities/Structures Data Element Table

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with **all** the activities/structure classifications at the MRS.

Note: The term *inhabited structure* is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, educational, commercial, or subsistence	w Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	5
Parks and recreational areas	w Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	w Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	3
Industrial or warehousing	w Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	2
No known or recurring activities	w There are no known or recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	1
TYPES OF ACTIVITIES/STRUCTURES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Types of Activities/Structures*** classifications in the space provided.

There are residential, recreational (Pat Mayse WMA and State Park), agricultural, and commercial land uses within two miles of the MRS. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 9

EHE Module: Ecological and/or Cultural Resources Data Element Table

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms *ecological resources* and *cultural resources* are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and cultural resources present	w There are both ecological and cultural resources present on the MRS.	5
Ecological resources present	w There are ecological resources present on the MRS.	3
Cultural resources present	w There are cultural resources present on the MRS.	3
No ecological or cultural resources present	w There are no ecological resources or cultural resources present on the MRS.	0
ECOLOGICAL AND/OR CULTURAL RESOURCES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ecological and/or Cultural Resources*** classification in the space provided.

While several threatened and endangered species are known to inhabit the area in and around Lamar County, there are no known cultural or ecological resources present at the MRS. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 10
Determining the EHE Module Rating

DIRECTIONS:

1. From Tables 1–9, record the data element scores in the **Score** boxes to the right.

2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.

3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.

4. Circle the appropriate range for the **EHE Module Total** below.

5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
Explosive Hazard Factor Data Elements			
Munitions Type	Table 1	30	40
Source of Hazard	Table 2	10	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	25	35
Ease of Access	Table 4	10	
Status of Property	Table 5	0	
Receptor Factor Data Elements			
Population Density	Table 6	1	11
Population Near Hazard	Table 7	5	
Types of Activities/Structures	Table 8	5	
Ecological and/or Cultural Resources	Table 9	0	
EHE MODULE TOTAL			86

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE MODULE RATING	**B**

Table 11

CHE Module: CWM Configuration Data Element Table

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with **all** the CWM configurations known or suspected to be present at the MRS.

Note: The terms *CWM/UXO, CWM/DMM, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, that are either UXO, or explosively configured damaged DMM	The CWM known or suspected of being present at the MRS are: w CWM that are UXO (i.e., CWM/UXO) w Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	30
CWM mixed with UXO	w The CWM known or suspected of being present at the MRS are undamaged CWM/DMM or CWM not configured as a munition that are commingled with conventional munitions that are UXO.	25
CWM, explosive configuration that are undamaged DMM	w The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM that have not been damaged.	20
CWM/DMM, not explosively configured or CWM, bulk container	The CWM known or suspected of being present at the MRS are: w Nonexplosively configured CWM/DMM either damaged or undamaged w Bulk CWM (e.g., ton container).	15
CAIS K941 and CAIS K942	w The CWM/DMM known or suspected of being present at the MRS are CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	12
CAIS (chemical agent identification sets)	w CAIS, other than CAIS K941 and K942, are known or suspected of being present at the MRS.	10
Evidence of no CWM	w Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	0
CWM CONFIGURATION	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space provided.

There is no historical evidence that CWM was ever used at Camp Maxey. (RI/FS Report [EOTI, 2014]; Section 6.1.3)

Tables 12-19

No known or suspected CWM hazard is expected at this site. Therefore, Tables 12 through 19 have been intentionally omitted according to Active Army Guidance.

Table 20

Determining the CHE Module Rating

DIRECTIONS:

1. From Tables 11–19, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **CHE Module Total** box below.
4. Circle the appropriate range for the **CHE Module Total** below.
5. Circle the **CHE Module Rating** that corresponds to the range selected and record this value in the **CHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
CWM Hazard Factor Data Elements			
CWM Configuration	Table 11	0	0
Sources of CWM	Table 12	--	
Accessibility Factor Data Elements			
Location of CWM	Table 13	--	--
Ease of Access	Table 14	--	
Status of Property	Table 15	--	
Receptor Factor Data Elements			
Population Density	Table 16	--	--
Population Near Hazard	Table 17	--	
Types of Activities/Structures	Table 18	--	
Ecological and/or Cultural Resources	Table 19	--	
CHE MODULE TOTAL			0

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected CWM Hazard
CHE MODULE RATING	**No Known or Suspected CWM Hazard**

Table 21

HHE Module: Groundwater Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
Groundwater samples were not collected.			
CHF Scale	**CHF Value**	**Sum The Ratios**	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Groundwater MC Hazard q

Table 22

HHE Module: Surface Water – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/L)	Comparison Value (mg/L)	Ratios
Surface water samples were not collected.			

CHF Scale	CHF Value	Sum The Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Water (Human Endpoint) MC Hazard q

Table 23

HHE Module: Sediment – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the sediment, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
Sediment Samples were not collected			

CHF Scale	CHF Value	Sum The Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Sediment (Human Endpoint) MC Hazard q

Table 24

HHE Module: Surface Water – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/L)	Comparison Value (mg/L)	Ratios
Surface water samples were not collected.			
CHF Scale	**CHF Value**	**Sum the Ratios**	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Water (Ecological Endpoint) MC Hazard q

Table 25

HHE Module: Sediment – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the sediment, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
Sediment samples were not collected.			

CHF Scale	CHF Value	Sum the Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Sediment (Ecological Endpoint) MC Hazard q

Table 26

HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface soil and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface soil contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the surface soil, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratio
All analytical data detected below levels of concern at this MRS and in other areas of the Former Camp Maxey. There is no human health or ecological risk associated with MC			

CHF Scale	CHF Value	Sum the Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface soil to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Soil MC Hazard ü

Table 27

HHE Module: Supplemental Contaminant Hazard Factor Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the **media** in which these contaminants are present. Then record all **contaminants**, their **maximum concentrations** and their **comparison values** (from Appendix B of the Primer) in the table below. Calculate and record the **ratio** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28

Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the **Contaminant Hazard**, **Migration Pathway**, and **Receptor Factors** for the media (from Tables 21–26) in the corresponding boxes below.
2. Record the media's three-letter combinations in the **Three-Letter Combination** boxes below (three-letter combinations are arranged from Hs to Ms to Ls).
3. Using the **HHE Ratings** provided below, determine each media's rating (A–G) and record the letter in the corresponding **Media Rating** box below.

Media (Source)	Contaminant Hazard Factor Value	Migratory Pathway Factor Value	Receptor Factor Value	Three-Letter Combination (Hs-Ms-Ls)	Media Rating (A-G)
Groundwater (Table 21)	--	--	--	--	--
Surface Water/Human Endpoint (Table 22)	--	--	--	--	--
Sediment/Human Endpoint (Table 23)	--	--	--	--	--
Surface Water/Ecological Endpoint (Table 24)	--	--	--	--	--
Sediment/Ecological Endpoint (Table 25)	--	--	--	--	--
Surface Soil (Table 26)	--	**--**	**--**	**--**	No Known or Suspected MC Hazard

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the **HHE Module Rating** box.

Note:

An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE MODULE RATING	--

HHE Ratings (for reference only)

Combination	Rating
HHH	A
HHM	B
HHL	C
HMM	
HML	D
MMM	
HLL	E
MML	
MLL	F
LLL	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Priority

DIRECTIONS: In the chart below, circle the letter **rating** for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical **priority** for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the **MRS Priority or Alternative MRS Rating** at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
C	4	D	4	C	4
D	5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		No Longer Required	
No Known or Suspected Explosive Hazard		**No Known or Suspected CWM Hazard**		**No Known or Suspected MC Hazard**	
MRS PRIORITY or ALTERNATIVE MRS RATING				**3**	

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the **MRS Summary**, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental nonmunitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Eastern Range Area B
Component: U.S. Army

Installation/Property Name: Camp Maxey FUDS

Location (City, County, State): Paris, Lamar County, TX

Site Name/Project Name (Project No.): Former Camp Maxey (K06TX0305) **PRDF/FRMD**:____________________

Date Information Entered/Updated: December 2013

Point of Contact (Name/Phone): Layne Young (410.332.4806)

Project Phase (check only one): RI/FS

q PA	q SI	ü RI	ü FS	q RD
q RA-C	q RIP	q RA-O	q RC	q LTM

Note: This Draft MRSPP was created in coordination with the U.S. Army Corps of Engineers and additional project stakeholders. Prior to being finalized the MRSPP will be included in a public notice and will be available for public review.

Media Evaluated (check all that apply):.

q Groundwater	q Sediment (human receptor)
q Surface soil	q Surface Water (ecological receptor)
q Sediment (ecological receptor)	q Surface Water (human receptor)

MRS Summary:
MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:

This MRS includes 540 acres located on the peninsula that extends into the south side of Pat Mayse Lake in the center of the East Range Area. The property is used for camping and other recreational activities. Recreational activities in this MRS are primarily on the surface but there may be some shallow subsurface exposure associated with some camping activities. Although no MEC was located within this MRS during the RI, previous investigation/removal projects have identified some MEC in the MRS. (RI/FS Report [EOTI, 2014]; Table 4-1)

Description of Pathways for Human and Ecological Receptors:
Potentially complete pathways exist for recreational users, outdoor site workers, and biota for MEC in the surface and subsurface. Incomplete pathways exist for all human and ecological receptors for MC. (RI/FS Report [EOTI, 2014]; Section 5.1.2)

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond with **all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	W UXO that are considered most likely to function upon any interaction with exposed persons (e.g., submunitions, 40mm high-explosive [HE] grenades, white phosphorus [WP] munitions, high-explosive antitank [HEAT] munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions). W Hand grenades containing energetic filler. W Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard.	30
High explosive (used or damaged)	W UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered “sensitive.” W DMM containing a high-explosive filler that have: § Been damaged by burning or detonation § Deteriorated to the point of instability.	25
Pyrotechnic (used or damaged)	W UXO containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades). W DMM containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades) that have: § Been damaged by burning or detonation § Deteriorated to the point of instability.	20
High explosive (unused)	W DMM containing a high-explosive filler that: § Have not been damaged by burning or detonation § Are not deteriorated to the point of instability.	15
Propellant	W UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). W DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: § Damaged by burning or detonation § Deteriorated to the point of instability.	15
Bulk secondary high explosives, pyrotechnics, or propellant	W DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). W DMM that are bulk secondary high explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	10
Pyrotechnic (not used or damaged)	W DMM containing a pyrotechnic filler (i.e., red phosphorus), other than white phosphorus filler, that: § Have not been damaged by burning or detonation § Are not deteriorated to the point of instability.	10
Practice	W UXO that are practice munitions that are not associated with a sensitive fuze. W DMM that are practice munitions that are not associated with a sensitive fuze and that have not: § Been damaged by burning or detonation § Deteriorated to the point of instability.	5
Riot control	W UXO or DMM containing a riot control agent filler (e.g., tear gas).	3
Small arms	W Used munitions or DMM that are categorized as small arms ammunition. (Physical evidence or historical evidence that no other types of munitions [e.g., grenades, subcaliber training rockets, demolition charges] were used or are present on the MRS is required for selection of this category.)	2
Evidence of no munitions	W Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
MUNITIONS TYPE	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	**30**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.
Numerous UXO has been found in the MRS to include 37mm APHE and HE projectiles. (RI/FS Report [EOTI, 2014]; Section 1.5.8)

Table 2
EHE Module: Source of Hazard Data Element Table

DIRECTIONS: Below are 11 classifications describing sources of explosive hazards. Circle the scores that correspond with **all** the sources of explosive hazards known or suspected to be present at the MRS.

Note: The terms *former range, practice munitions, small arms range, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former range	w The MRS is a former military range where munitions (including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas and associated buffer and safety zones.	10
Former munitions treatment (i.e., OB/OD) unit	w The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	8
Former practice munitions range	w The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	6
Former maneuver area	w The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	5
Former burial pit or other disposal area	w The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a water body) without prior thermal treatment.	5
Former industrial operating facilities	w The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	4
Former firing points	w The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of a former military range.	4
Former missile or air defense artillery emplacements	w The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	2
Former storage or transfer points	w The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	2
Former small arms range	w The MRS is a former military range where only small arms ammunition was used. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present to place an MRS into this category.)	1
Evidence of no munitions	w Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	0
SOURCE OF HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**10**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

Numerous ranges overlap all or portions of the MRS. (RI/FS Report [EOTI, 2014]; Table 4-1)

Table 3

EHE Module: Location of Munitions Data Element Table

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.

Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed surface	W Physical evidence indicates that there are UXO or DMM on the surface of the MRS. W Historical evidence (i.e., a confirmed report such as an explosive ordnance disposal [EOD], police, or fire department report that an incident or accident that involved UXO or DMM occurred) indicates there are UXO or DMM on the surface of the MRS.	25
Confirmed subsurface, active	W Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. W Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	20
Confirmed subsurface, stable	W Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed. W Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed.	15
Suspected (physical evidence)	W There is physical evidence (e.g., munitions debris such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	10
Suspected (historical evidence)	W There is historical evidence indicating that UXO or DMM may be present at the MRS.	5
Subsurface, physical constraint	W There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	2
Small arms (regardless of location)	W The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present at the MRS to place an MRS into this category.)	1
Evidence of no munitions	W Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
LOCATION OF MUNITIONS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	**20**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

Numerous UXO were found in the subsurface during a 2001 clearance in the MRS. (RI/FS Report [EOTI, 2014]; Section 1.5.8)

Table 4
EHE Module: Ease of Access Data Element Table

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS.
Note: The term *barrier* is defined in Appendix C of the Primer.

Classification	Description	Score
No barrier	w There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	10
Barrier to MRS access is incomplete	w There is a barrier preventing access to parts of the MRS, but not the entire MRS.	8
Barrier to MRS access is complete but not monitored	w There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5
Barrier to MRS access is complete and monitored	w There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	0
EASE OF ACCESS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	10

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ease of Access*** classification in the space provided.

No barriers currently exist for the MRS**.** (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 5

EHE Module: Status of Property Data Element Table

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD control	w The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal, or local governments; and land or water bodies managed by other federal agencies. w The MRS is at a location that is owned by DoD, but that DoD has leased to another entity and for which DoD does not control access 24 hours per day.	5
Scheduled for transfer from DoD control	w The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the Protocol is applied.	3
DoD control	w The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD must control access to the MRS 24 hours per day, every day of the calendar year.	0
STATUS OF PROPERTY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Status of Property*** classification in the space provided.

The MRS is located on property owned and managed by the USACE. (RI/FS Report [EOTI, 2014]; Table 4-1)

Table 6

EHE Module: Population Density Data Element Table

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score.

Note: Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 persons per square mile	w There are more than 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	5
100–500 persons per square mile	w There are 100 to 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	3
< 100 persons per square mile	w There are fewer than 100 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	1
POPULATION DENSITY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**1**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Density*** classification in the space provided.

According to U.S. Census data, the population density for Lamar County, TX is 55 persons per square mile. (Lamar County QuickFacts [U.S. Census Bureau]; http://quickfacts.census.gov/qfd/states/48/48277.html)

Table 7
EHE Module: Population Near Hazard Data Element Table

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
26 or more inhabited structures	w There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	5
16 to 25 inhabited structures	w There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15 inhabited structures	w There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10 inhabited structures	w There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5 inhabited structures	w There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0 inhabited structures	w There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
POPULATION NEAR HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classification in the space provided.

There are greater than 26 inhabited structures within 2 miles from the boundary of the MRS. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 8

EHE Module: Types of Activities/Structures Data Element Table

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with **all** the activities/structure classifications at the MRS.

Note: The term *inhabited structure* is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, educational, commercial, or subsistence	• Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	5
Parks and recreational areas	• Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	• Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	3
Industrial or warehousing	• Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	2
No known or recurring activities	• There are no known or recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	1
TYPES OF ACTIVITIES/STRUCTURES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Types of Activities/Structures*** classifications in the space provided.

There are residential, recreational (Pat Mayse WMA and State Park) , agricultural, and commercial land uses within two miles of the MRS. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 9

EHE Module: Ecological and/or Cultural Resources Data Element Table

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms *ecological resources* and *cultural resources* are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and cultural resources present	w There are both ecological and cultural resources present on the MRS.	5
Ecological resources present	w There are ecological resources present on the MRS.	3
Cultural resources present	w There are cultural resources present on the MRS.	3
No ecological or cultural resources present	w There are no ecological resources or cultural resources present on the MRS.	0
ECOLOGICAL AND/OR CULTURAL RESOURCES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ecological and/or Cultural Resources*** classification in the space provided.

While several threatened and endangered species are known to inhabit the area, there are no known cultural or ecological resources present at the MRS. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 10
Determining the EHE Module Rating

DIRECTIONS:

1. From Tables 1–9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.
4. Circle the appropriate range for the **EHE Module Total** below.
5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
Explosive Hazard Factor Data Elements			
Munitions Type	Table 1	30	40
Source of Hazard	Table 2	10	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	20	30
Ease of Access	Table 4	10	
Status of Property	Table 5	0	
Receptor Factor Data Elements			
Population Density	Table 6	1	11
Population Near Hazard	Table 7	5	
Types of Activities/Structures	Table 8	5	
Ecological and/or Cultural Resources	Table 9	0	
EHE MODULE TOTAL			81

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE MODULE RATING	**C**

Table 11

CHE Module: CWM Configuration Data Element Table

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with **all** the CWM configurations known or suspected to be present at the MRS.

Note: The terms *CWM/UXO, CWM/DMM, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, that are either UXO, or explosively configured damaged DMM	The CWM known or suspected of being present at the MRS are: w CWM that are UXO (i.e., CWM/UXO) w Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	30
CWM mixed with UXO	w The CWM known or suspected of being present at the MRS are undamaged CWM/DMM or CWM not configured as a munition that are commingled with conventional munitions that are UXO.	25
CWM, explosive configuration that are undamaged DMM	w The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM that have not been damaged.	20
CWM/DMM, not explosively configured or CWM, bulk container	The CWM known or suspected of being present at the MRS are: w Nonexplosively configured CWM/DMM either damaged or undamaged w Bulk CWM (e.g., ton container).	15
CAIS K941 and CAIS K942	w The CWM/DMM known or suspected of being present at the MRS are CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	12
CAIS (chemical agent identification sets)	w CAIS, other than CAIS K941 and K942, are known or suspected of being present at the MRS.	10
Evidence of no CWM	w Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	0
CWM CONFIGURATION	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space provided.

There is no historical evidence that CWM was ever used at Camp Maxey. (RI/FS Report [EOTI, 2014]; Section 6.1.3)

Tables 12-19

No known or suspected CWM hazard is expected at this site. Therefore, Tables 12 through 19 have been intentionally omitted according to Active Army Guidance.

Table 20

Determining the CHE Module Rating

DIRECTIONS:

1. From Tables 11–19, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **CHE Module Total** box below.
4. Circle the appropriate range for the **CHE Module Total** below.
5. Circle the **CHE Module Rating** that corresponds to the range selected and record this value in the **CHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
CWM Hazard Factor Data Elements			
CWM Configuration	Table 11	0	0
Sources of CWM	Table 12	--	
Accessibility Factor Data Elements			
Location of CWM	Table 13	--	--
Ease of Access	Table 14	--	
Status of Property	Table 15	--	
Receptor Factor Data Elements			
Population Density	Table 16	--	--
Population Near Hazard	Table 17	--	
Types of Activities/Structures	Table 18	--	
Ecological and/or Cultural Resources	Table 19	--	
		CHE MODULE TOTAL	0

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected CWM Hazard
CHE MODULE RATING	**No Known or Suspected CWM Hazard**

Table 21

HHE Module: Groundwater Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (μg/L)	Comparison Value (μg/L)	Ratios
Groundwater samples were not collected.			
CHF Scale	**CHF Value**	**Sum The Ratios**	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Groundwater MC Hazard	q

Table 22

HHE Module: Surface Water – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/L)	Comparison Value (mg/L)	Ratios
Surface water samples were not collected.			

CHF Scale	CHF Value	Sum The Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Water (Human Endpoint) MC Hazard q

Table 23

HHE Module: Sediment – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the sediment, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
Sediment Samples were not collected			

CHF Scale	CHF Value	Sum The Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right maximum value = H).	

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Sediment (Human Endpoint) MC Hazard q

Table 24

HHE Module: Surface Water – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/L)	Comparison Value (mg/L)	Ratios
Surface water samples were not collected.			
CHF Scale	**CHF Value**	**Sum the Ratios**	
CHF > 100	**H (High)**		
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

$$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$$

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Water (Ecological Endpoint) MC Hazard q

Table 25

HHE Module: Sediment – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the sediment, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
Sediment samples were not collected.			

CHF Scale	CHF Value	Sum the Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Sediment (Ecological Endpoint) MC Hazard q

Table 26

HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface soil and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface soil contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the surface soil, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratio
No surface soil samples were collected from the MRS. All analytical data detected below levels of concern in other areas of the Former Camp Maxey. There is no human health or ecological risk associated with MC.			

CHF Scale	CHF Value	Sum the Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface soil to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Soil MC Hazard q

Table 27

HHE Module: Supplemental Contaminant Hazard Factor Table

<u>Contaminant Hazard Factor (CHF)</u>

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the **media** in which these contaminants are present. Then record all **contaminants**, their **maximum concentrations** and their **comparison values** (from Appendix B of the Primer) in the table below. Calculate and record the **ratio** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28

Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the **Contaminant Hazard**, **Migration Pathway**, and **Receptor Factors** for the media (from Tables 21–26) in the corresponding boxes below.
2. Record the media's three-letter combinations in the **Three-Letter Combination** boxes below (three-letter combinations are arranged from Hs to Ms to Ls).
3. Using the **HHE Ratings** provided below, determine each media's rating (A–G) and record the letter in the corresponding **Media Rating** box below.

Media (Source)	Contaminant Hazard Factor Value	Migratory Pathway Factor Value	Receptor Factor Value		Three-Letter Combination (Hs-Ms-Ls)		Media Rating (A-G)
Groundwater (Table 21)	--	--	--		--		--
Surface Water/Human Endpoint (Table 22)	--	--	--		--		--
Sediment/Human Endpoint (Table 23)	--	--	--		--		--
Surface Water/Ecological Endpoint (Table 24)	--	--	--		--		--
Sediment/Ecological Endpoint (Table 25)	--	--	--		--		--
Surface Soil (Table 26)	--	--	--		--		--

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the **HHE Module Rating** box.

Note:

An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE MODULE RATING	--

HHE Ratings (for reference only)

Combination	Rating
HHH	A
HHM	B
HHL	C
HMM	C
HML	D
MMM	D
HLL	E
MML	E
MLL	F
LLL	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Priority

DIRECTIONS: In the chart below, circle the letter **rating** for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical **priority** for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the **MRS Priority or Alternative MRS Rating** at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	**1**		
A	**2**	**B**	**2**	**A**	**2**
B	**3**	**C**	**3**	**B**	**3**
C	**4**	**D**	**4**	**C**	**4**
D	**5**	**E**	**5**	**D**	**5**
E	**6**	**F**	**6**	**E**	**6**
F	**7**	**G**	**7**	**F**	**7**
G	**8**			**G**	**8**
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		No Longer Required	
No Known or Suspected Explosive Hazard		**No Known or Suspected CWM Hazard**		**No Known or Suspected MC Hazard**	
MRS PRIORITY or ALTERNATIVE MRS RATING				**4**	

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the **MRS Summary**, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental nonmunitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Eastern Range Area C
Component: U.S. Army

Installation/Property Name: Camp Maxey FUDS

Location (City, County, State): Paris, Lamar County, TX

Site Name/Project Name (Project No.): Former Camp Maxey (K06TX0305) **PRDF/FRMD**:____________________

Date Information Entered/Updated: December 2013

Point of Contact (Name/Phone): Layne Young (410.332.4806)

Project Phase (check only one): RI/FS

q PA	q SI	ü RI	ü FS	q RD
q RA-C	q RIP	q RA-O	q RC	q LTM

Note: This Draft MRSPP was created in coordination with the U.S. Army Corps of Engineers and additional project stakeholders. Prior to being finalized the MRSPP will be included in a public notice and will be available for public review.

Media Evaluated (check all that apply):.

q Groundwater	q Sediment (human receptor)
q Surface soil	q Surface Water (ecological receptor)
q Sediment (ecological receptor)	q Surface Water (human receptor)

MRS Summary:

MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:

This MRS includes 563 acres located on the southern shore of the lake within the East Range Area. It is located along a narrow band between the National Guard facility and Pat Mayse Lake. Although not designated for public recreational use, the area can be accessed by lake or over land. Potential exposure could result from surface related recreational activities, such as hiking or fishing along the lake shore. One MEC item was located on the surface during the RI and MD density was generally low throughout the MRS. (RI/FS Report [EOTI, 2014]; Table 4-1)

Description of Pathways for Human and Ecological Receptors:
Potentially complete pathways exist for recreational users, outdoor site workers, and biota for MEC in the surface and subsurface. Incomplete pathways exist for all human and ecological receptors for MC. (RI/FS Report [EOTI, 2014]; Section 5.1.2)

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond with **all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	W UXO that are considered most likely to function upon any interaction with exposed persons (e.g., submunitions, 40mm high-explosive [HE] grenades, white phosphorus [WP] munitions, high-explosive antitank [HEAT] munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions). W Hand grenades containing energetic filler. W Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard.	30
High explosive (used or damaged)	W UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered "sensitive." W DMM containing a high-explosive filler that have: § Been damaged by burning or detonation § Deteriorated to the point of instability.	25
Pyrotechnic (used or damaged)	W UXO containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades). W DMM containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades) that have: § Been damaged by burning or detonation § Deteriorated to the point of instability.	20
High explosive (unused)	W DMM containing a high-explosive filler that: § Have not been damaged by burning or detonation § Are not deteriorated to the point of instability.	15
Propellant	W UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). W DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: § Damaged by burning or detonation § Deteriorated to the point of instability.	15
Bulk secondary high explosives, pyrotechnics, or propellant	W DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). W DMM that are bulk secondary high explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	10
Pyrotechnic (not used or damaged)	W DMM containing a pyrotechnic filler (i.e., red phosphorus), other than white phosphorus filler, that: § Have not been damaged by burning or detonation § Are not deteriorated to the point of instability.	10
Practice	W UXO that are practice munitions that are not associated with a sensitive fuze. W DMM that are practice munitions that are not associated with a sensitive fuze and that have not: § Been damaged by burning or detonation § Deteriorated to the point of instability.	5
Riot control	W UXO or DMM containing a riot control agent filler (e.g., tear gas).	3
Small arms	W Used munitions or DMM that are categorized as small arms ammunition. (Physical evidence or historical evidence that no other types of munitions [e.g., grenades, subcaliber training rockets, demolition charges] were used or are present on the MRS is required for selection of this category.)	2
Evidence of no munitions	W Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
MUNITIONS TYPE	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	**30**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

UXO has been found in the MRS to include 37 mm projectiles, hand grenades and 2.36-inch rockets. (RI/FS Report [EOTI, 2014]; Section 1.5.6)

Table 2
EHE Module: Source of Hazard Data Element Table

DIRECTIONS: Below are 11 classifications describing sources of explosive hazards. Circle the scores that correspond with **all** the sources of explosive hazards known or suspected to be present at the MRS.

Note: The terms *former range, practice munitions, small arms range, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former range	w The MRS is a former military range where munitions (including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas and associated buffer and safety zones.	10
Former munitions treatment (i.e., OB/OD) unit	w The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	8
Former practice munitions range	w The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	6
Former maneuver area	w The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	5
Former burial pit or other disposal area	w The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a water body) without prior thermal treatment.	5
Former industrial operating facilities	w The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	4
Former firing points	w The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of a former military range.	4
Former missile or air defense artillery emplacements	w The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	2
Former storage or transfer points	w The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	2
Former small arms range	w The MRS is a former military range where only small arms ammunition was used. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present to place an MRS into this category.)	1
Evidence of no munitions	w Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	0
SOURCE OF HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**10**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

Numerous ranges overlap all or portions of the MRS. (RI/FS Report [EOTI, 2014]; Table 4-1)

Table 3

EHE Module: Location of Munitions Data Element Table

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.

Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed surface	W Physical evidence indicates that there are UXO or DMM on the surface of the MRS. W Historical evidence (i.e., a confirmed report such as an explosive ordnance disposal [EOD], police, or fire department report that an incident or accident that involved UXO or DMM occurred) indicates there are UXO or DMM on the surface of the MRS.	25
Confirmed subsurface, active	W Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. W Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	20
Confirmed subsurface, stable	W Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed. W Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed.	15
Suspected (physical evidence)	W There is physical evidence (e.g., munitions debris such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	10
Suspected (historical evidence)	W There is historical evidence indicating that UXO or DMM may be present at the MRS.	5
Subsurface, physical constraint	W There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	2
Small arms (regardless of location)	W The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present at the MRS to place an MRS into this category.)	1
Evidence of no munitions	W Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
LOCATION OF MUNITIONS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	**20**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

UXO were found in the subsurface during a 1998 ordnance survey. (RI/FS Report [EOTI, 2014]; Section 1.5.6)

Table 4

EHE Module: Ease of Access Data Element Table

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS.

Note: The term *barrier* is defined in Appendix C of the Primer.

Classification	Description	Score
No barrier	w There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	10
Barrier to MRS access is incomplete	w There is a barrier preventing access to parts of the MRS, but not the entire MRS.	8
Barrier to MRS access is complete but not monitored	w There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5
Barrier to MRS access is complete and monitored	w There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	0
EASE OF ACCESS	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 10).	**10**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ease of Access*** classification in the space provided.

No barriers currently exist for the MRS. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 5

EHE Module: Status of Property Data Element Table

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD control	w The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal, or local governments; and land or water bodies managed by other federal agencies. w The MRS is at a location that is owned by DoD, but that DoD has leased to another entity and for which DoD does not control access 24 hours per day.	5
Scheduled for transfer from DoD control	w The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the Protocol is applied.	3
DoD control	w The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD must control access to the MRS 24 hours per day, every day of the calendar year.	0
STATUS OF PROPERTY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Status of Property*** classification in the space provided.

The MRS is located on property owned and managed by the USACE. (RI/FS Report [EOTI, 2014]; Table 4-1)

Table 6
EHE Module: Population Density Data Element Table

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score.
Note: Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 persons per square mile	w There are more than 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	5
100–500 persons per square mile	w There are 100 to 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	3
< 100 persons per square mile	w There are fewer than 100 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	1
POPULATION DENSITY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**1**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Density*** classification in the space provided.

According to U.S. Census data, the population density for Lamar County, TX is 55 persons per square mile. (Lamar County QuickFacts [U.S. Census Bureau]; http://quickfacts.census.gov/qfd/states/48/48277.html)

Table 7

EHE Module: Population Near Hazard Data Element Table

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
26 or more inhabited structures	w There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	5
16 to 25 inhabited structures	w There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15 inhabited structures	w There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10 inhabited structures	w There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5 inhabited structures	w There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0 inhabited structures	w There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
POPULATION NEAR HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classification in the space provided.

There are greater than 26 inhabited structures within 2 miles from the boundary of the MRS. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 8

EHE Module: Types of Activities/Structures Data Element Table

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with **all** the activities/structure classifications at the MRS.

Note: The term *inhabited structure* is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, educational, commercial, or subsistence	w Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	5
Parks and recreational areas	w Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	w Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	3
Industrial or warehousing	w Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	2
No known or recurring activities	w There are no known or recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	1
TYPES OF ACTIVITIES/STRUCTURES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Types of Activities/Structures*** classifications in the space provided.

There are residential, recreational (Pat Mayse WMA and State Park) , agricultural, and commercial land uses within two miles of the MRS. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 9

EHE Module: Ecological and/or Cultural Resources Data Element Table

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms *ecological resources* and *cultural resources* are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and cultural resources present	w There are both ecological and cultural resources present on the MRS.	5
Ecological resources present	w There are ecological resources present on the MRS.	3
Cultural resources present	w There are cultural resources present on the MRS.	3
No ecological or cultural resources present	w There are no ecological resources or cultural resources present on the MRS.	0
ECOLOGICAL AND/OR CULTURAL RESOURCES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ecological and/or Cultural Resources*** classification in the space provided.

While several threatened and endangered species are known to inhabit the area, there are no known cultural or ecological resources present at the MRS. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 10
Determining the EHE Module Rating

DIRECTIONS:

1. From Tables 1–9, record the data element scores in the **Score** boxes to the right.

2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.

3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.

4. Circle the appropriate range for the **EHE Module Total** below.

5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
Explosive Hazard Factor Data Elements			
Munitions Type	Table 1	30	40
Source of Hazard	Table 2	10	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	20	30
Ease of Access	Table 4	10	
Status of Property	Table 5	0	
Receptor Factor Data Elements			
Population Density	Table 6	1	110
Population Near Hazard	Table 7	5	
Types of Activities/Structures	Table 8	5	
Ecological and/or Cultural Resources	Table 9	0	
EHE MODULE TOTAL			81

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE MODULE RATING	**C**

Table 11

CHE Module: CWM Configuration Data Element Table

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with **all** the CWM configurations known or suspected to be present at the MRS.

Note: The terms *CWM/UXO, CWM/DMM, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, that are either UXO, or explosively configured damaged DMM	The CWM known or suspected of being present at the MRS are: w CWM that are UXO (i.e., CWM/UXO) w Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	30
CWM mixed with UXO	w The CWM known or suspected of being present at the MRS are undamaged CWM/DMM or CWM not configured as a munition that are commingled with conventional munitions that are UXO.	25
CWM, explosive configuration that are undamaged DMM	w The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM that have not been damaged.	20
CWM/DMM, not explosively configured or CWM, bulk container	The CWM known or suspected of being present at the MRS are: w Nonexplosively configured CWM/DMM either damaged or undamaged w Bulk CWM (e.g., ton container).	15
CAIS K941 and CAIS K942	w The CWM/DMM known or suspected of being present at the MRS are CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	12
CAIS (chemical agent identification sets)	w CAIS, other than CAIS K941 and K942, are known or suspected of being present at the MRS.	10
Evidence of no CWM	w Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	0
CWM CONFIGURATION	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space provided.

There is no historical evidence that CWM was ever used at Camp Maxey. (RI/FS Report [EOTI, 2014]; Section 6.1.3)

Tables 12-19

No known or suspected CWM hazard is expected at this site. Therefore, Tables 12 through 19 have been intentionally omitted according to Active Army Guidance.

Table 20

Determining the CHE Module Rating

DIRECTIONS:

1. From Tables 11–19, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **CHE Module Total** box below.
4. Circle the appropriate range for the **CHE Module Total** below.
5. Circle the **CHE Module Rating** that corresponds to the range selected and record this value in the **CHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
CWM Hazard Factor Data Elements			
CWM Configuration	Table 11	0	0
Sources of CWM	Table 12	--	
Accessibility Factor Data Elements			
Location of CWM	Table 13	--	--
Ease of Access	Table 14	--	
Status of Property	Table 15	--	
Receptor Factor Data Elements			
Population Density	Table 16	--	--
Population Near Hazard	Table 17	--	
Types of Activities/Structures	Table 18	--	
Ecological and/or Cultural Resources	Table 19	--	
CHE MODULE TOTAL			0

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected CWM Hazard
CHE MODULE RATING	**No Known or Suspected CWM Hazard**

Table 21

HHE Module: Groundwater Data Element Table

<u>Contaminant Hazard Factor (CHF)</u>

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (μg/L)	Comparison Value (μg/L)	Ratios
Groundwater samples were not collected.			
CHF Scale	**CHF Value**	**Sum The Ratios**	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **<u>the CHF Value</u>** from above in the box to the right (maximum value = H).		

<u>Migratory Pathway Factor</u>

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **<u>the single highest value</u>** from above in the box to the right (maximum value = H).	

<u>Receptor Factor</u>

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **<u>the single highest value</u>** from above in the box to the right (maximum value = H).	

No Known or Suspected Groundwater MC Hazard q

Table 22

HHE Module: Surface Water – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/L)	Comparison Value (mg/L)	Ratios
Surface water samples were not collected.			

CHF Scale	CHF Value	Sum The Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Water (Human Endpoint) MC Hazard q

Table 23

HHE Module: Sediment – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the sediment, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
Sediment Samples were not collected			

CHF Scale	CHF Value	Sum The Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Sediment (Human Endpoint) MC Hazard q

Table 24

HHE Module: Surface Water – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (μg/L)	Comparison Value (μg/L)	Ratios
Surface water samples were not collected.			
CHF Scale	**CHF Value**	**Sum the Ratios**	
CHF > 100	**H (High)**		
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

$$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$$

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Water (Ecological Endpoint) MC Hazard q

Table 25

HHE Module: Sediment – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the sediment, select the box at the bottom of the table.

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Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
Sediment samples were not collected.			

CHF Scale	CHF Value	Sum the Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Sediment (Ecological Endpoint) MC Hazard q

Table 26

HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface soil and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface soil contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the surface soil, select the box at the bottom of the table.

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Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratio
No surface soil samples were collected from the MRS. All analytical data detected below levels of concern in other areas of the Former Camp Maxey. There is no human health or ecological risk associated with MC.			

CHF Scale	CHF Value	Sum the Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface soil to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Soil MC Hazard q

Table 27

HHE Module: Supplemental Contaminant Hazard Factor Table

<u>**Contaminant Hazard Factor (CHF)**</u>

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the **media** in which these contaminants are present. Then record all **contaminants**, their **maximum concentrations** and their **comparison values** (from Appendix B of the Primer) in the table below. Calculate and record the **ratio** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28
Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the **Contaminant Hazard**, **Migration Pathway**, and **Receptor Factors** for the media (from Tables 21–26) in the corresponding boxes below.
2. Record the media's three-letter combinations in the **Three-Letter Combination** boxes below (three-letter combinations are arranged from Hs to Ms to Ls).
3. Using the **HHE Ratings** provided below, determine each media's rating (A–G) and record the letter in the corresponding **Media Rating** box below.

Media (Source)	Contaminant Hazard Factor Value	Migratory Pathway Factor Value	Receptor Factor Value	Three-Letter Combination (Hs-Ms-Ls)	Media Rating (A-G)
Groundwater (Table 21)	--	--	--	--	--
Surface Water/Human Endpoint (Table 22)	--	--	--	--	--
Sediment/Human Endpoint (Table 23)	--	--	--	--	--
Surface Water/Ecological Endpoint (Table 24)	--	--	--	--	--
Sediment/Ecological Endpoint (Table 25)	--	--	--	--	--
Surface Soil (Table 26)	--	--	--	--	--

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the **HHE Module Rating** box.

Note:

An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE MODULE RATING	

HHE Ratings (for reference only)

Combination	Rating
HHH	A
HHM	B
HHL	C
HMM	C
HML	D
MMM	D
HLL	E
MML	E
MLL	F
LLL	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Priority

DIRECTIONS: In the chart below, circle the letter **rating** for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical **priority** for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the **MRS Priority or Alternative MRS Rating** at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
C	4	D	4	C	4
D	5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		No Longer Required	
No Known or Suspected Explosive Hazard		**No Known or Suspected CWM Hazard**		**No Known or Suspected MC Hazard**	
MRS PRIORITY or ALTERNATIVE MRS RATING				4	

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the **MRS Summary**, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental nonmunitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Grenade Range Area
Component: U.S. Army

Installation/Property Name: Camp Maxey FUDS

Location (City, County, State): Paris, Lamar County, TX

Site Name/Project Name (Project No.): Former Camp Maxey (K06TX0305) **PRDF/FRMD**:____________________

Date Information Entered/Updated: December 2013

Point of Contact (Name/Phone): Layne Young (410.332.4806)

Project Phase (check only one): RI/FS

q PA	q SI	ü RI	ü FS	q RD
q RA-C	q RIP	q RA-O	q RC	q LTM

Note: This Draft MRSPP was created in coordination with the U.S. Army Corps of Engineers and additional project stakeholders. Prior to being finalized the MRSPP will be included in a public notice and will be available for public review.

Media Evaluated (check all that apply):.

q Groundwater	q Sediment (human receptor)
ü Surface soil	q Surface Water (ecological receptor)
q Sediment (ecological receptor)	q Surface Water (human receptor)

MRS Summary:
MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:

This MRS includes 97 acres encompassing three areas identified in historical documents as grenade training areas, located on the south side of the lake west of the Eastern Range Area. The MRS is located on public land that may be accessed for recreational activities associated with Pat Mayse Lake, such as hiking and fishing. The RI results identified 1 surface MEC item and MD which could be an indication of potential MEC in the area. (RI/FS Report [EOTI, 2014]; Table 4-1)

Description of Pathways for Human and Ecological Receptors:
Potentially complete pathways exist for recreational users, outdoor site workers, and biota for MEC in the surface and subsurface. Incomplete pathways exist for all human and ecological receptors for MC. (RI/FS Report [EOTI, 2014]; Section 5.1.2)

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond with **all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	W UXO that are considered most likely to function upon any interaction with exposed persons (e.g., submunitions, 40mm high-explosive [HE] grenades, white phosphorus [WP] munitions, high-explosive antitank [HEAT] munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions). W Hand grenades containing energetic filler. W Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard.	30
High explosive (used or damaged)	W UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered "sensitive." W DMM containing a high-explosive filler that have: § Been damaged by burning or detonation § Deteriorated to the point of instability.	25
Pyrotechnic (used or damaged)	W UXO containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades). W DMM containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades) that have: § Been damaged by burning or detonation § Deteriorated to the point of instability.	20
High explosive (unused)	W DMM containing a high-explosive filler that: § Have not been damaged by burning or detonation § Are not deteriorated to the point of instability.	15
Propellant	W UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). W DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: § Damaged by burning or detonation § Deteriorated to the point of instability.	15
Bulk secondary high explosives, pyrotechnics, or propellant	W DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). W DMM that are bulk secondary high explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	10
Pyrotechnic (not used or damaged)	W DMM containing a pyrotechnic filler (i.e., red phosphorus), other than white phosphorus filler, that: § Have not been damaged by burning or detonation § Are not deteriorated to the point of instability.	10
Practice	W UXO that are practice munitions that are not associated with a sensitive fuze. W DMM that are practice munitions that are not associated with a sensitive fuze and that have not: § Been damaged by burning or detonation § Deteriorated to the point of instability.	5
Riot control	W UXO or DMM containing a riot control agent filler (e.g., tear gas).	3
Small arms	W Used munitions or DMM that are categorized as small arms ammunition. (Physical evidence or historical evidence that no other types of munitions [e.g., grenades, subcaliber training rockets, demolition charges] were used or are present on the MRS is required for selection of this category.)	2
Evidence of no munitions	W Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
MUNITIONS TYPE	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	30

DIRECTIONS: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

The MRS was historically used a grenade range. During the RI, one UXO item (a 2.36 inch Rocket) was found on the surface. (RI/FS Report [EOTI, 2014]; Table 3-2)

Table 2
EHE Module: Source of Hazard Data Element Table

DIRECTIONS: Below are 11 classifications describing sources of explosive hazards. Circle the scores that correspond with **all** the sources of explosive hazards known or suspected to be present at the MRS.

Note: The terms *former range, practice munitions, small arms range, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former range	w The MRS is a former military range where munitions (including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas and associated buffer and safety zones.	10
Former munitions treatment (i.e., OB/OD) unit	w The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	8
Former practice munitions range	w The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	6
Former maneuver area	w The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	5
Former burial pit or other disposal area	w The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a water body) without prior thermal treatment.	5
Former industrial operating facilities	w The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	4
Former firing points	w The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of a former military range.	4
Former missile or air defense artillery emplacements	w The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	2
Former storage or transfer points	w The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	2
Former small arms range	w The MRS is a former military range where only small arms ammunition was used. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present to place an MRS into this category.)	1
Evidence of no munitions	w Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	0
SOURCE OF HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**10**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

Historically this MRS was used as a grenade range area. (RI/FS Report [EOTI, 2014]; Table 4-1)

Table 3

EHE Module: Location of Munitions Data Element Table

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.

Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed surface	W Physical evidence indicates that there are UXO or DMM on the surface of the MRS. W Historical evidence (i.e., a confirmed report such as an explosive ordnance disposal [EOD], police, or fire department report that an incident or accident that involved UXO or DMM occurred) indicates there are UXO or DMM on the surface of the MRS.	25
Confirmed subsurface, active	W Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. W Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	20
Confirmed subsurface, stable	W Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed. W Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed.	15
Suspected (physical evidence)	W There is physical evidence (e.g., munitions debris such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	10
Suspected (historical evidence)	W There is historical evidence indicating that UXO or DMM may be present at the MRS.	5
Subsurface, physical constraint	W There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	2
Small arms (regardless of location)	W The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present at the MRS to place an MRS into this category.)	1
Evidence of no munitions	W Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
LOCATION OF MUNITIONS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	**25**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

During the RI, a 2.36-inch rocket was found on the surface. (RI/FS Report [EOTI, 2014]; Table 3-2)

Table 4
EHE Module: Ease of Access Data Element Table

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS.
Note: The term *barrier* is defined in Appendix C of the Primer.

Classification	Description	Score
No barrier	w There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	10
Barrier to MRS access is incomplete	w There is a barrier preventing access to parts of the MRS, but not the entire MRS.	8
Barrier to MRS access is complete but not monitored	w There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5
Barrier to MRS access is complete and monitored	w There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	0
EASE OF ACCESS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	10

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ease of Access*** classification in the space provided.

No barriers currently exist for the MRS. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 5
EHE Module: Status of Property Data Element Table

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD control	w The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal, or local governments; and land or water bodies managed by other federal agencies. w The MRS is at a location that is owned by DoD, but that DoD has leased to another entity and for which DoD does not control access 24 hours per day.	5
Scheduled for transfer from DoD control	w The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the Protocol is applied.	3
DoD control	w The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD must control access to the MRS 24 hours per day, every day of the calendar year.	0
STATUS OF PROPERTY	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 5).	0

DIRECTIONS: Document any MRS-specific data used in selecting the ***Status of Property*** classification in the space provided.

The MRS is located on property owned and managed by the USACE. (RI/FS Report [EOTI, 2014]; Table 4-1)

Table 6
EHE Module: Population Density Data Element Table

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score.

Note: Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 persons per square mile	w There are more than 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	5
100–500 persons per square mile	w There are 100 to 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	3
< 100 persons per square mile	w There are fewer than 100 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	1
POPULATION DENSITY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**1**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Density*** classification in the space provided.

According to U.S. Census data, the population density for Lamar County, TX is 55 persons per square mile. (Lamar County QuickFacts [U.S. Census Bureau]; http://quickfacts.census.gov/qfd/states/48/48277.html)

Table 7
EHE Module: Population Near Hazard Data Element Table

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
26 or more inhabited structures	w There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	5
16 to 25 inhabited structures	w There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15 inhabited structures	w There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10 inhabited structures	w There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5 inhabited structures	w There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0 inhabited structures	w There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
POPULATION NEAR HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classification in the space provided.

There are greater than 26 inhabited structures within 2 miles from the boundary of the MRS. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 8

EHE Module: Types of Activities/Structures Data Element Table

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with **all** the activities/structure classifications at the MRS.

Note: The term *inhabited structure* is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, educational, commercial, or subsistence	w Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	5
Parks and recreational areas	w Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	w Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	3
Industrial or warehousing	w Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	2
No known or recurring activities	w There are no known or recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	1
TYPES OF ACTIVITIES/STRUCTURES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**4**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Types of Activities/Structures*** classifications in the space provided.

The MRS is on property owned by the USACE and open to the public for hunting and other recreational activities. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 9

EHE Module: Ecological and/or Cultural Resources Data Element Table

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms *ecological resources* and *cultural resources* are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and cultural resources present	w There are both ecological and cultural resources present on the MRS.	5
Ecological resources present	w There are ecological resources present on the MRS.	3
Cultural resources present	w There are cultural resources present on the MRS.	3
No ecological or cultural resources present	w There are no ecological resources or cultural resources present on the MRS.	0
ECOLOGICAL AND/OR CULTURAL RESOURCES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ecological and/or Cultural Resources*** classification in the space provided.

While several threatened and endangered species are known to inhabit the area in and around Lamar County, there are no known cultural or ecological resources present at the MRS. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 10
Determining the EHE Module Rating

DIRECTIONS:

1. From Tables 1–9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.
4. Circle the appropriate range for the **EHE Module Total** below.
5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
Explosive Hazard Factor Data Elements			
Munitions Type	Table 1	30	40
Source of Hazard	Table 2	10	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	25	35
Ease of Access	Table 4	10	
Status of Property	Table 5	0	
Receptor Factor Data Elements			
Population Density	Table 6	1	10
Population Near Hazard	Table 7	5	
Types of Activities/Structures	Table 8	4	
Ecological and/or Cultural Resources	Table 9	0	
EHE MODULE TOTAL			85

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE MODULE RATING	**C**

Table 11
CHE Module: CWM Configuration Data Element Table

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with **all** the CWM configurations known or suspected to be present at the MRS.

Note: The terms *CWM/UXO, CWM/DMM, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, that are either UXO, or explosively configured damaged DMM	The CWM known or suspected of being present at the MRS are: w CWM that are UXO (i.e., CWM/UXO) w Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	30
CWM mixed with UXO	w The CWM known or suspected of being present at the MRS are undamaged CWM/DMM or CWM not configured as a munition that are commingled with conventional munitions that are UXO.	25
CWM, explosive configuration that are undamaged DMM	w The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM that have not been damaged.	20
CWM/DMM, not explosively configured or CWM, bulk container	The CWM known or suspected of being present at the MRS are: w Nonexplosively configured CWM/DMM either damaged or undamaged w Bulk CWM (e.g., ton container).	15
CAIS K941 and CAIS K942	w The CWM/DMM known or suspected of being present at the MRS are CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	12
CAIS (chemical agent identification sets)	w CAIS, other than CAIS K941 and K942, are known or suspected of being present at the MRS.	10
Evidence of no CWM	w Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	0
CWM CONFIGURATION	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	0

DIRECTIONS: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space provided.

There is no historical evidence that CWM was ever used at Camp Maxey. (RI/FS Report [EOTI, 2014]; Section 6.1.3)

Tables 12-19
No known or suspected CWM hazard is expected at this site. Therefore, Tables 12 through 19 have been intentionally omitted according to Active Army Guidance.

Table 20
Determining the CHE Module Rating

DIRECTIONS:

1. From Tables 11–19, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **CHE Module Total** box below.
4. Circle the appropriate range for the **CHE Module Total** below.
5. Circle the **CHE Module Rating** that corresponds to the range selected and record this value in the **CHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
CWM Hazard Factor Data Elements			
CWM Configuration	Table 11	0	0
Sources of CWM	Table 12	--	
Accessibility Factor Data Elements			
Location of CWM	Table 13	--	--
Ease of Access	Table 14	--	
Status of Property	Table 15	--	
Receptor Factor Data Elements			
Population Density	Table 16	--	--
Population Near Hazard	Table 17	--	
Types of Activities/Structures	Table 18	--	
Ecological and/or Cultural Resources	Table 19	--	
CHE MODULE TOTAL			0

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected CWM Hazard
CHE MODULE RATING	**No Known or Suspected CWM Hazard**

Table 21

HHE Module: Groundwater Data Element Table

<u>Contaminant Hazard Factor (CHF)</u>

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (µg/L)	Comparison Value (µg/L)	Ratios
Groundwater samples were not collected.			
CHF Scale	**CHF Value**	**Sum The Ratios**	
CHF > 100	**H (High)**		
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		

$$\textit{CHF} = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$$

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **<u>the CHF Value</u>** from above in the box to the right (maximum value = H).	

<u>Migratory Pathway Factor</u>

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **<u>the single highest value</u>** from above in the box to the right (maximum value = H).	

<u>Receptor Factor</u>

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **<u>the single highest value</u>** from above in the box to the right (maximum value = H).	

No Known or Suspected Groundwater MC Hazard q

Table 22

HHE Module: Surface Water – Human Endpoint Data Element Table

<u>Contaminant Hazard Factor (CHF)</u>

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (μg/L)	Comparison Value (μg/L)	Ratios
Surface water samples were not collected.			

CHF Scale	CHF Value	Sum The Ratios	
CHF > 100	H (High)	$$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **<u>the CHF Value</u>** from above in the box to the right (maximum value = H).		

<u>Migratory Pathway Factor</u>

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **<u>the single highest value</u>** from above in the box to the right (maximum value = H).	

<u>Receptor Factor</u>

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **<u>the single highest value</u>** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Water (Human Endpoint) MC Hazard q

Table 23

HHE Module: Sediment – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the sediment, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
Sediment Samples were not collected			

CHF Scale	CHF Value	Sum The Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Sediment (Human Endpoint) MC Hazard q

Table 24

HHE Module: Surface Water – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (μg/L)	Comparison Value (μg/L)	Ratios
Surface water samples were not collected.			
CHF Scale	**CHF Value**	**Sum the Ratios**	
CHF > 100	**H (High)**	$$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **<u>the CHF Value</u>** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **<u>the single highest value</u>** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **<u>the single highest value</u>** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Water (Ecological Endpoint) MC Hazard q

Table 25

HHE Module: Sediment – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the sediment, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
Sediment samples were not collected.			

CHF Scale	CHF Value	Sum the Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Sediment (Ecological Endpoint) MC Hazard q

Table 26

HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface soil and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface soil contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the surface soil, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratio
All analytical data detected below levels of concern at this MRS and in other areas of the Former Camp Maxey. There is no human health or ecological risk associated with MC.			

CHF Scale	CHF Value	Sum the Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface soil to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Soil MC Hazard ü

Table 27

HHE Module: Supplemental Contaminant Hazard Factor Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the **media** in which these contaminants are present. Then record all **contaminants**, their **maximum concentrations** and their **comparison values** (from Appendix B of the Primer) in the table below. Calculate and record the **ratio** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28

Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the **Contaminant Hazard**, **Migration Pathway**, and **Receptor Factors** for the media (from Tables 21–26) in the corresponding boxes below.
2. Record the media's three-letter combinations in the **Three-Letter Combination** boxes below (three-letter combinations are arranged from Hs to Ms to Ls).
3. Using the **HHE Ratings** provided below, determine each media's rating (A–G) and record the letter in the corresponding **Media Rating** box below.

Media (Source)	Contaminant Hazard Factor Value	Migratory Pathway Factor Value	Receptor Factor Value	Three-Letter Combination (Hs-Ms-Ls)	Media Rating (A-G)
Groundwater (Table 21)	--	--	--	--	--
Surface Water/Human Endpoint (Table 22)	--	--	--	--	--
Sediment/Human Endpoint (Table 23)	--	--	--	--	--
Surface Water/Ecological Endpoint (Table 24)	--	--	--	--	--
Sediment/Ecological Endpoint (Table 25)	--	--	--	--	--
Surface Soil (Table 26)	--	--	--	--	No Known or Suspected MC Hazard

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the **HHE Module Rating** box.

Note:

An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE MODULE RATING	--

HHE Ratings (for reference only)

Combination	Rating
HHH	A
HHM	B
HHL	C
HMM	C
HML	D
MMM	D
HLL	E
MML	E
MLL	F
LLL	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Priority

DIRECTIONS: In the chart below, circle the letter **rating** for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical **priority** for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the **MRS Priority or Alternative MRS Rating** at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
C	4	D	4	C	4
D	5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		No Longer Required	
No Known or Suspected Explosive Hazard		**No Known or Suspected CWM Hazard**		**No Known or Suspected MC Hazard**	
MRS PRIORITY or ALTERNATIVE MRS RATING				**4**	

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the **MRS Summary**, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental nonmunitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Cave Training Area
Component: U.S. Army

Installation/Property Name: Camp Maxey FUDS

Location (City, County, State): Paris, Lamar County, TX

Site Name/Project Name (Project No.): Former Camp Maxey (K06TX0305) **PRDF/FRMD**:____________________

Date Information Entered/Updated: December 2013

Point of Contact (Name/Phone): Layne Young (410.332.4806)

Project Phase (check only one): RI/FS

q PA	q SI	ü RI	ü FS	q RD
q RA-C	q RIP	q RA-O	q RC	q LTM

Note: This Draft MRSPP was created in coordination with the U.S. Army Corps of Engineers and additional project stakeholders. Prior to being finalized the MRSPP will be included in a public notice and will be available for public review.

Media Evaluated (check all that apply):.

q Groundwater	q Sediment (human receptor)
q Surface soil	q Surface Water (ecological receptor)
q Sediment (ecological receptor)	q Surface Water (human receptor)

MRS Summary:

MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:

This MRS is a 7-acre small area located south of the West Range Area. It is located within a privately owned parcel which was not accessible during the RI. There is little historical information but anecdotal information suggests that the area was used for simulated cave clearing operations. Additional data is needed to characterize the MRS. (RI/FS Report [EOTI, 2014]; Table 4-1)

Description of Pathways for Human and Ecological Receptors:
Potentially complete pathways exist for residents, trespassers, outdoor site workers, and biota for MEC in the surface and subsurface. Incomplete pathways exist for all human and ecological receptors for MC. (RI/FS Report [EOTI, 2014]; Section 5.1.2)

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond with **all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	W UXO that are considered most likely to function upon any interaction with exposed persons (e.g., submunitions, 40mm high-explosive [HE] grenades, white phosphorus [WP] munitions, high-explosive antitank [HEAT] munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions). W Hand grenades containing energetic filler. W Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard.	30
High explosive (used or damaged)	W UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered “sensitive.” W DMM containing a high-explosive filler that have: § Been damaged by burning or detonation § Deteriorated to the point of instability.	25
Pyrotechnic (used or damaged)	W UXO containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades). W DMM containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades) that have: § Been damaged by burning or detonation § Deteriorated to the point of instability.	20
High explosive (unused)	W DMM containing a high-explosive filler that: § Have not been damaged by burning or detonation § Are not deteriorated to the point of instability.	15
Propellant	W UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). W DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: § Damaged by burning or detonation § Deteriorated to the point of instability.	15
Bulk secondary high explosives, pyrotechnics, or propellant	W DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). W DMM that are bulk secondary high explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	10
Pyrotechnic (not used or damaged)	W DMM containing a pyrotechnic filler (i.e., red phosphorus), other than white phosphorus filler, that: § Have not been damaged by burning or detonation § Are not deteriorated to the point of instability.	10
Practice	W UXO that are practice munitions that are not associated with a sensitive fuze. W DMM that are practice munitions that are not associated with a sensitive fuze and that have not: § Been damaged by burning or detonation § Deteriorated to the point of instability.	5
Riot control	W UXO or DMM containing a riot control agent filler (e.g., tear gas).	3
Small arms	W Used munitions or DMM that are categorized as small arms ammunition. (Physical evidence or historical evidence that no other types of munitions [e.g., grenades, subcaliber training rockets, demolition charges] were used or are present on the MRS is required for selection of this category.)	2
Evidence of no munitions	W Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
MUNITIONS TYPE	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 30).	10

DIRECTIONS: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

There is little historical information but anecdotal information suggests that the area was used for simulated cave clearing operations using practice munitions and pytotechnics. (RI/FS Report [EOTI, 2014]; Table 4-1)

Table 2
EHE Module: Source of Hazard Data Element Table

DIRECTIONS: Below are 11 classifications describing sources of explosive hazards. Circle the scores that correspond with **all** the sources of explosive hazards known or suspected to be present at the MRS.

Note: The terms *former range, practice munitions, small arms range, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former range	w The MRS is a former military range where munitions (including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas and associated buffer and safety zones.	10
Former munitions treatment (i.e., OB/OD) unit	w The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	8
Former practice munitions range	w The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	6
Former maneuver area	w The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	5
Former burial pit or other disposal area	w The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a water body) without prior thermal treatment.	5
Former industrial operating facilities	w The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	4
Former firing points	w The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of a former military range.	4
Former missile or air defense artillery emplacements	w The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	2
Former storage or transfer points	w The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	2
Former small arms range	w The MRS is a former military range where only small arms ammunition was used. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present to place an MRS into this category.)	1
Evidence of no munitions	w Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	0
SOURCE OF HAZARD	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 10).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

There is little historical information but anecdotal information suggests that the area was used for simulated cave clearing operations using practice munitions and pyrotechnics. (RI/FS Report [EOTI, 2014]; Table 4-1)

Table 3

EHE Module: Location of Munitions Data Element Table

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.

Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed surface	W Physical evidence indicates that there are UXO or DMM on the surface of the MRS. W Historical evidence (i.e., a confirmed report such as an explosive ordnance disposal [EOD], police, or fire department report that an incident or accident that involved UXO or DMM occurred) indicates there are UXO or DMM on the surface of the MRS.	25
Confirmed subsurface, active	W Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. W Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	20
Confirmed subsurface, stable	W Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed. W Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed.	15
Suspected (physical evidence)	W There is physical evidence (e.g., munitions debris such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	10
Suspected (historical evidence)	W There is historical evidence indicating that UXO or DMM may be present at the MRS.	5
Subsurface, physical constraint	W There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	2
Small arms (regardless of location)	W The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present at the MRS to place an MRS into this category.)	1
Evidence of no munitions	W Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
LOCATION OF MUNITIONS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

There is little historical information but anecdotal information suggests that the area was used for simulated cave clearing operations using practice munitions and pyrotechnics. (RI/FS Report [EOTI, 2014]; Table 4-1)

Table 4
EHE Module: Ease of Access Data Element Table

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS.
Note: The term *barrier* is defined in Appendix C of the Primer.

Classification	Description	Score
No barrier	• There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	10
Barrier to MRS access is incomplete	• There is a barrier preventing access to parts of the MRS, but not the entire MRS.	8
Barrier to MRS access is complete but not monitored	• There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5
Barrier to MRS access is complete and monitored	• There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	0
EASE OF ACCESS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	10

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ease of Access*** classification in the space provided.

No barriers currently exist for the MRS. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 5
EHE Module: Status of Property Data Element Table

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD control	w The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal, or local governments; and land or water bodies managed by other federal agencies. w The MRS is at a location that is owned by DoD, but that DoD has leased to another entity and for which DoD does not control access 24 hours per day.	5
Scheduled for transfer from DoD control	w The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the Protocol is applied.	3
DoD control	w The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD must control access to the MRS 24 hours per day, every day of the calendar year.	0
STATUS OF PROPERTY	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Status of Property*** classification in the space provided.

The property within the Cave Training Area is privately owned. (RI/FS Report [EOTI, 2014]; Table 4-1)

Table 6

EHE Module: Population Density Data Element Table

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score.

Note: Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 persons per square mile	w There are more than 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	5
100–500 persons per square mile	w There are 100 to 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	3
< 100 persons per square mile	w There are fewer than 100 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	1
POPULATION DENSITY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**1**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Density*** classification in the space provided.

According to U.S. Census data, the population density for Lamar County, TX is 55 persons per square mile. (Lamar County QuickFacts [U.S. Census Bureau]; http://quickfacts.census.gov/qfd/states/48/48277.html)

Table 7

EHE Module: Population Near Hazard Data Element Table

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
26 or more inhabited structures	w There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	5
16 to 25 inhabited structures	w There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15 inhabited structures	w There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10 inhabited structures	w There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5 inhabited structures	w There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0 inhabited structures	w There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
POPULATION NEAR HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classification in the space provided.

There are greater than 26 inhabited structures within 2 miles from the boundary of the MRS. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 8

EHE Module: Types of Activities/Structures Data Element Table

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with **all** the activities/structure classifications at the MRS.

Note: The term *inhabited structure* is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, educational, commercial, or subsistence	• Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	5
Parks and recreational areas	• Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	• Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	3
Industrial or warehousing	• Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	2
No known or recurring activities	• There are no known or recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	1
TYPES OF ACTIVITIES/STRUCTURES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Types of Activities/Structures*** classifications in the space provided.

There are residential, recreational (Pat Mayse WMA and State Park) , agricultural, and commercial land uses within two miles of the MRS. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 9

EHE Module: Ecological and/or Cultural Resources Data Element Table

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms *ecological resources* and *cultural resources* are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and cultural resources present	w There are both ecological and cultural resources present on the MRS.	5
Ecological resources present	w There are ecological resources present on the MRS.	3
Cultural resources present	w There are cultural resources present on the MRS.	3
No ecological or cultural resources present	w There are no ecological resources or cultural resources present on the MRS.	0
ECOLOGICAL AND/OR CULTURAL RESOURCES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ecological and/or Cultural Resources*** classification in the space provided.

While several threatened and endangered species are known to inhabit the area in and around Lamar County, there are no known cultural or ecological resources present at the MRS. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 10

Determining the EHE Module Rating

DIRECTIONS:

1. From Tables 1–9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.
4. Circle the appropriate range for the **EHE Module Total** below.
5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
Explosive Hazard Factor Data Elements			
Munitions Type	Table 1	10	15
Source of Hazard	Table 2	5	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	5	20
Ease of Access	Table 4	10	
Status of Property	Table 5	5	
Receptor Factor Data Elements			
Population Density	Table 6	1	11
Population Near Hazard	Table 7	5	
Types of Activities/Structures	Table 8	5	
Ecological and/or Cultural Resources	Table 9	0	
EHE MODULE TOTAL			46

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE MODULE RATING	**F**

Table 11

CHE Module: CWM Configuration Data Element Table

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with **all** the CWM configurations known or suspected to be present at the MRS.

Note: The terms *CWM/UXO, CWM/DMM, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, that are either UXO, or explosively configured damaged DMM	The CWM known or suspected of being present at the MRS are: w CWM that are UXO (i.e., CWM/UXO) w Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	30
CWM mixed with UXO	w The CWM known or suspected of being present at the MRS are undamaged CWM/DMM or CWM not configured as a munition that are commingled with conventional munitions that are UXO.	25
CWM, explosive configuration that are undamaged DMM	w The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM that have not been damaged.	20
CWM/DMM, not explosively configured or CWM, bulk container	The CWM known or suspected of being present at the MRS are: w Nonexplosively configured CWM/DMM either damaged or undamaged w Bulk CWM (e.g., ton container).	15
CAIS K941 and CAIS K942	w The CWM/DMM known or suspected of being present at the MRS are CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	12
CAIS (chemical agent identification sets)	w CAIS, other than CAIS K941 and K942, are known or suspected of being present at the MRS.	10
Evidence of no CWM	w Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	0
CWM CONFIGURATION	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	0

DIRECTIONS: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space provided.

There is no historical evidence that CWM was ever used at Camp Maxey. (RI/FS Report [EOTI, 2014]; Section 6.1.3)

Tables 12-19

No known or suspected CWM hazard is expected at this site. Therefore, Tables 12 through 19 have been intentionally omitted according to Active Army Guidance.

Table 20

Determining the CHE Module Rating

DIRECTIONS:

1. From Tables 11–19, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **CHE Module Total** box below.
4. Circle the appropriate range for the **CHE Module Total** below.
5. Circle the **CHE Module Rating** that corresponds to the range selected and record this value in the **CHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
CWM Hazard Factor Data Elements			
CWM Configuration	Table 11	0	0
Sources of CWM	Table 12	--	
Accessibility Factor Data Elements			
Location of CWM	Table 13	--	--
Ease of Access	Table 14	--	
Status of Property	Table 15	--	
Receptor Factor Data Elements			
Population Density	Table 16	--	--
Population Near Hazard	Table 17	--	
Types of Activities/Structures	Table 18	--	
Ecological and/or Cultural Resources	Table 19	--	
CHE MODULE TOTAL			0

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected CWM Hazard
CHE MODULE RATING	**No known or Suspected CWM Hazard**

Table 21

HHE Module: Groundwater Data Element Table

<u>Contaminant Hazard Factor (CHF)</u>

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (μg/L)	Comparison Value (μg/L)	Ratios
Groundwater samples were not collected.			
CHF Scale	**CHF Value**	**Sum The Ratios**	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **<u>the CHF Value</u>** from above in the box to the right (maximum value = H).		

<u>Migratory Pathway Factor</u>

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **<u>the single highest value</u>** from above in the box to the right (maximum value = H).	

<u>Receptor Factor</u>

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **<u>the single highest value</u>** from above in the box to the right (maximum value = H).	

No Known or Suspected Groundwater MC Hazard q

Table 22

HHE Module: Surface Water – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/L)	Comparison Value (mg/L)	Ratios
Surface water samples were not collected.			

CHF Scale	CHF Value	Sum The Ratios	
CHF > 100	H (High)		
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		

$$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$$

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Water (Human Endpoint) MC Hazard q

Table 23

HHE Module: Sediment – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the sediment, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
Sediment Samples were not collected			

CHF Scale	CHF Value	Sum The Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right maximum value = H).	

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Sediment (Human Endpoint) MC Hazard q

Table 24

HHE Module: Surface Water – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/L)	Comparison Value (mg/L)	Ratios
Surface water samples were not collected.			
CHF Scale	**CHF Value**	**Sum the Ratios**	
CHF > 100	**H (High)**		
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

$$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$$

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Water (Ecological Endpoint) MC Hazard q

Table 25

HHE Module: Sediment – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the sediment, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
Sediment samples were not collected.			

CHF Scale	CHF Value	Sum the Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Sediment (Ecological Endpoint) MC Hazard q

Table 26

HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface soil and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface soil contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the surface soil, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratio
No surface soil samples were collected from the Cave Training Area. All analytical data detected below levels of concern in other areas of the Former Camp Maxey. There is no human health or ecological risk associated with MC.			

CHF Scale	CHF Value	Sum the Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface soil to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Soil MC Hazard q

Table 27

HHE Module: Supplemental Contaminant Hazard Factor Table

<u>Contaminant Hazard Factor (CHF)</u>

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the **media** in which these contaminants are present. Then record all **contaminants**, their **maximum concentrations** and their **comparison values** (from Appendix B of the Primer) in the table below. Calculate and record the **ratio** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28

Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the **Contaminant Hazard**, **Migration Pathway**, and **Receptor Factors** for the media (from Tables 21–26) in the corresponding boxes below.
2. Record the media's three-letter combinations in the **Three-Letter Combination** boxes below (three-letter combinations are arranged from Hs to Ms to Ls).
3. Using the **HHE Ratings** provided below, determine each media's rating (A–G) and record the letter in the corresponding **Media Rating** box below.

Media (Source)	Contaminant Hazard Factor Value	Migratory Pathway Factor Value	Receptor Factor Value	Three-Letter Combination (Hs-Ms-Ls)	Media Rating (A-G)
Groundwater (Table 21)	--	--	--	--	--
Surface Water/Human Endpoint (Table 22)	--	--	--	--	--
Sediment/Human Endpoint (Table 23)	--	--	--	--	--
Surface Water/Ecological Endpoint (Table 24)	--	--	--	--	--
Sediment/Ecological Endpoint (Table 25)	--	--	--	--	--
Surface Soil (Table 26)	--	--	--	--	--

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the **HHE Module Rating** box.

Note:

An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE MODULE RATING	--

HHE Ratings (for reference only)

Combination	Rating
HHH	A
HHM	B
HHL	C
HMM	C
HML	D
MMM	D
HLL	E
MML	E
MLL	F
LLL	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Priority

DIRECTIONS: In the chart below, circle the letter **rating** for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical **priority** for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the **MRS Priority or Alternative MRS Rating** at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
C	4	D	4	C	4
D	5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		No Longer Required	
No Known or Suspected Explosive Hazard		**No Known or Suspected CWM Hazard**		**No Known or Suspected MC Hazard**	
MRS PRIORITY or ALTERNATIVE MRS RATING				**7**	

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the **MRS Summary**, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental nonmunitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Mine and Booby Trap Area
Component: U.S. Army

Installation/Property Name: Camp Maxey FUDS

Location (City, County, State): Paris, Lamar County, TX

Site Name/Project Name (Project No.): Former Camp Maxey (K06TX0305) **PRDF/FRMD**:____________________

Date Information Entered/Updated: December 2013

Point of Contact (Name/Phone): Layne Young (410.332.4806)

Project Phase (check only one): RI/FS

q PA	q SI	ü RI	ü FS	q RD
q RA-C	q RIP	q RA-O	q RC	q LTM

Note: This Draft MRSPP was created in coordination with the U.S. Army Corps of Engineers and additional project stakeholders. Prior to being finalized the MRSPP will be included in a public notice and will be available for public review.

Media Evaluated (check all that apply):.

q Groundwater	q Sediment (human receptor)
q Surface soil	q Surface Water (ecological receptor)
q Sediment (ecological receptor)	q Surface Water (human receptor)

MRS Summary:

MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:

This MRS is 35 acres located east of the West Range Area and is on privately owned residential parcels. Historical records indicated that the area was used to train with practice mines. Collection of data during the RI was limited by a lack of access to several private parcels in the area; however during a reconnaissance of the area a property owner provided information and evidence that confirmed mine training in the area. Practice mines used during the time that the Former Camp Maxey was in operation, contained a small "puff charge" that was not intended to cause harm. (RI/FS Report [EOTI, 2014]; Table 4-1)

Description of Pathways for Human and Ecological Receptors:
Potentially complete pathways exist for residents, trespassers, outdoor site workers, and biota for MEC in the surface and subsurface. Incomplete pathways exist for all human and ecological receptors for MC. (RI/FS Report [EOTI, 2014]; Section 5.1.2)

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond with **all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	W UXO that are considered most likely to function upon any interaction with exposed persons (e.g., submunitions, 40mm high-explosive [HE] grenades, white phosphorus [WP] munitions, high-explosive antitank [HEAT] munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions). W Hand grenades containing energetic filler. W Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard.	30
High explosive (used or damaged)	W UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered “sensitive.” W DMM containing a high-explosive filler that have: § Been damaged by burning or detonation § Deteriorated to the point of instability.	25
Pyrotechnic (used or damaged)	W UXO containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades). W DMM containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades) that have: § Been damaged by burning or detonation § Deteriorated to the point of instability.	20
High explosive (unused)	W DMM containing a high-explosive filler that: § Have not been damaged by burning or detonation § Are not deteriorated to the point of instability.	15
Propellant	W UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). W DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: § Damaged by burning or detonation § Deteriorated to the point of instability.	15
Bulk secondary high explosives, pyrotechnics, or propellant	W DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). W DMM that are bulk secondary high explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	10
Pyrotechnic (not used or damaged)	W DMM containing a pyrotechnic filler (i.e., red phosphorus), other than white phosphorus filler, that: § Have not been damaged by burning or detonation § Are not deteriorated to the point of instability.	10
Practice	W UXO that are practice munitions that are not associated with a sensitive fuze. W DMM that are practice munitions that are not associated with a sensitive fuze and that have not: § Been damaged by burning or detonation § Deteriorated to the point of instability.	5
Riot control	W UXO or DMM containing a riot control agent filler (e.g., tear gas).	3
Small arms	W Used munitions or DMM that are categorized as small arms ammunition. (Physical evidence or historical evidence that no other types of munitions [e.g., grenades, subcaliber training rockets, demolition charges] were used or are present on the MRS is required for selection of this category.)	2
Evidence of no munitions	W Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
MUNITIONS TYPE	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.
During the RI no UXO was found but local residents did provide evidence of practice mines found on the property. (RI/FS Report [EOTI, 2014]; Appendix J)

Table 2

EHE Module: Source of Hazard Data Element Table

DIRECTIONS: Below are 11 classifications describing sources of explosive hazards. Circle the scores that correspond with **all** the sources of explosive hazards known or suspected to be present at the MRS.

Note: The terms *former range, practice munitions, small arms range, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former range	w The MRS is a former military range where munitions (including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas and associated buffer and safety zones.	10
Former munitions treatment (i.e., OB/OD) unit	w The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	8
Former practice munitions range	w The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	6
Former maneuver area	w The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	5
Former burial pit or other disposal area	w The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a water body) without prior thermal treatment.	5
Former industrial operating facilities	w The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	4
Former firing points	w The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of a former military range.	4
Former missile or air defense artillery emplacements	w The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	2
Former storage or transfer points	w The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	2
Former small arms range	w The MRS is a former military range where only small arms ammunition was used. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present to place an MRS into this category.)	1
Evidence of no munitions	w Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	0
SOURCE OF HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	6

DIRECTIONS: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

The MRS was historically a mine and booby trap training area. (RI/FS Report [EOTI, 2014]; Appendix J)

Table 3

EHE Module: Location of Munitions Data Element Table

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.

Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed surface	W Physical evidence indicates that there are UXO or DMM on the surface of the MRS. W Historical evidence (i.e., a confirmed report such as an explosive ordnance disposal [EOD], police, or fire department report that an incident or accident that involved UXO or DMM occurred) indicates there are UXO or DMM on the surface of the MRS.	25
Confirmed subsurface, active	W Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. W Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	20
Confirmed subsurface, stable	W Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed. W Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed.	15
Suspected (physical evidence)	W There is physical evidence (e.g., munitions debris such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	10
Suspected (historical evidence)	W There is historical evidence indicating that UXO or DMM may be present at the MRS.	5
Subsurface, physical constraint	W There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	2
Small arms (regardless of location)	W The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present at the MRS to place an MRS into this category.)	1
Evidence of no munitions	W Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
LOCATION OF MUNITIONS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	**20**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

Evidence from property owners confirms practice land mines were found in the subsurface. (RI/FS Report [EOTI, 2014]; Appendix J)

Table 4

EHE Module: Ease of Access Data Element Table

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS.

Note: The term *barrier* is defined in Appendix C of the Primer.

Classification	Description	Score
No barrier	w There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	10
Barrier to MRS access is incomplete	w There is a barrier preventing access to parts of the MRS, but not the entire MRS.	8
Barrier to MRS access is complete but not monitored	w There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5
Barrier to MRS access is complete and monitored	w There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	0
EASE OF ACCESS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**10**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ease of Access*** classification in the space provided.

No barriers currently exist for the MRS. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 5

EHE Module: Status of Property Data Element Table

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD control	w The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal, or local governments; and land or water bodies managed by other federal agencies. w The MRS is at a location that is owned by DoD, but that DoD has leased to another entity and for which DoD does not control access 24 hours per day.	5
Scheduled for transfer from DoD control	w The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the Protocol is applied.	3
DoD control	w The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD must control access to the MRS 24 hours per day, every day of the calendar year.	0
STATUS OF PROPERTY	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Status of Property*** classification in the space provided.

The MRS is located on private property. (RI/FS Report [EOTI, 2014]; Table 4-1)

Table 6
EHE Module: Population Density Data Element Table

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score.

Note: Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 persons per square mile	w There are more than 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	5
100–500 persons per square mile	w There are 100 to 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	3
< 100 persons per square mile	w There are fewer than 100 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	1
POPULATION DENSITY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**1**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Density*** classification in the space provided.

According to U.S. Census data, the population density for Lamar County, TX is 55 persons per square mile. (Lamar County QuickFacts [U.S. Census Bureau]; http://quickfacts.census.gov/qfd/states/48/48277.html)

Table 7

EHE Module: Population Near Hazard Data Element Table

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
26 or more inhabited structures	w There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	5
16 to 25 inhabited structures	w There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15 inhabited structures	w There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10 inhabited structures	w There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5 inhabited structures	w There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0 inhabited structures	w There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
POPULATION NEAR HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classification in the space provided.

There are greater than 26 inhabited structures within 2 miles from the boundary of the MRS. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 8

EHE Module: Types of Activities/Structures Data Element Table

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with **all** the activities/structure classifications at the MRS.

Note: The term *inhabited structure* is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, educational, commercial, or subsistence	w Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	5
Parks and recreational areas	w Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	w Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	3
Industrial or warehousing	w Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	2
No known or recurring activities	w There are no known or recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	1
TYPES OF ACTIVITIES/STRUCTURES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Types of Activities/Structures*** classifications in the space provided.

The MRS is located on residential property. (RI/FS Report [EOTI, 2014]; Appendix J)

Table 9

EHE Module: Ecological and/or Cultural Resources Data Element Table

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms *ecological resources* and *cultural resources* are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and cultural resources present	w There are both ecological and cultural resources present on the MRS.	5
Ecological resources present	w There are ecological resources present on the MRS.	3
Cultural resources present	w There are cultural resources present on the MRS.	3
No ecological or cultural resources present	w There are no ecological resources or cultural resources present on the MRS.	0
ECOLOGICAL AND/OR CULTURAL RESOURCES	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 5).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ecological and/or Cultural Resources*** classification in the space provided.

While several threatened and endangered species are known to inhabit the area in and around Lamar County, there are no known cultural or ecological resources present at the MRS. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 10
Determining the EHE Module Rating

DIRECTIONS:

1. From Tables 1–9, record the data element scores in the **Score** boxes to the right.

2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.

3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.

4. Circle the appropriate range for the **EHE Module Total** below.

5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
Explosive Hazard Factor Data Elements			
Munitions Type	Table 1	5	11
Source of Hazard	Table 2	6	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	20	35
Ease of Access	Table 4	10	
Status of Property	Table 5	5	
Receptor Factor Data Elements			
Population Density	Table 6	1	11
Population Near Hazard	Table 7	5	
Types of Activities/Structures	Table 8	5	
Ecological and/or Cultural Resources	Table 9	0	
EHE MODULE TOTAL			57

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE MODULE RATING	**E**

Table 11

CHE Module: CWM Configuration Data Element Table

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with **all** the CWM configurations known or suspected to be present at the MRS.

Note: The terms *CWM/UXO, CWM/DMM, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, that are either UXO, or explosively configured damaged DMM	The CWM known or suspected of being present at the MRS are: • CWM that are UXO (i.e., CWM/UXO) • Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	30
CWM mixed with UXO	• The CWM known or suspected of being present at the MRS are undamaged CWM/DMM or CWM not configured as a munition that are commingled with conventional munitions that are UXO.	25
CWM, explosive configuration that are undamaged DMM	• The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM that have not been damaged.	20
CWM/DMM, not explosively configured or CWM, bulk container	The CWM known or suspected of being present at the MRS are: • Nonexplosively configured CWM/DMM either damaged or undamaged • Bulk CWM (e.g., ton container).	15
CAIS K941 and CAIS K942	• The CWM/DMM known or suspected of being present at the MRS are CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	12
CAIS (chemical agent identification sets)	• CAIS, other than CAIS K941 and K942, are known or suspected of being present at the MRS.	10
Evidence of no CWM	• Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	0
CWM CONFIGURATION	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space provided.

There is no historical evidence that CWM was ever used at Camp Maxey. (RI/FS Report [EOTI, 2014]; Section 6.1.3)

Tables 12-19

No known or suspected CWM hazard is expected at this site. Therefore, Tables 12 through 19 have been intentionally omitted according to Active Army Guidance.

Table 20
Determining the CHE Module Rating

DIRECTIONS:

1. From Tables 11–19, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **CHE Module Total** box below.
4. Circle the appropriate range for the **CHE Module Total** below.
5. Circle the **CHE Module Rating** that corresponds to the range selected and record this value in the **CHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
CWM Hazard Factor Data Elements			
CWM Configuration	Table 11	0	0
Sources of CWM	Table 12	--	
Accessibility Factor Data Elements			
Location of CWM	Table 13	--	--
Ease of Access	Table 14	--	
Status of Property	Table 15	--	
Receptor Factor Data Elements			
Population Density	Table 16	--	--
Population Near Hazard	Table 17	--	
Types of Activities/Structures	Table 18	--	
Ecological and/or Cultural Resources	Table 19	--	
		CHE MODULE TOTAL	0

CHE Module Total	**CHE Module Rating**
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected CWM Hazard
CHE MODULE RATING	**No Known or Suspected CWM Hazard**

Table 21

HHE Module: Groundwater Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/L)	Comparison Value (mg/L)	Ratios
Groundwater samples were not collected.			
CHF Scale	**CHF Value**	**Sum The Ratios**	
CHF > 100	**H (High)**		
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

$$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$$

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Groundwater MC Hazard q

Table 22

HHE Module: Surface Water – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/L)	Comparison Value (mg/L)	Ratios
Surface water samples were not collected.			

CHF Scale	CHF Value	Sum The Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Water (Human Endpoint) MC Hazard q

Table 23

HHE Module: Sediment – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the sediment, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
Sediment Samples were not collected			

CHF Scale	CHF Value	Sum The Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Sediment (Human Endpoint) MC Hazard q

Table 24

HHE Module: Surface Water – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (μg/L)	Comparison Value (μg/L)	Ratios
Surface water samples were not collected.			
CHF Scale	**CHF Value**	**Sum the Ratios**	
CHF > 100	**H (High)**		
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

$$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$$

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Water (Ecological Endpoint) MC Hazard	q

Table 25

HHE Module: Sediment – Ecological Endpoint Data Element Table

<u>Contaminant Hazard Factor (CHF)</u>

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the sediment, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
Sediment samples were not collected.			

CHF Scale	CHF Value	Sum the Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **<u>the CHF Value</u>** from above in the box to the right (maximum value = H).		

<u>Migratory Pathway Factor</u>

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **<u>the single highest value</u>** from above in the box to the right (maximum value = H).	

<u>Receptor Factor</u>

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **<u>the single highest value</u>** from above in the box to the right (maximum value = H).	

No Known or Suspected Sediment (Ecological Endpoint) MC Hazard q

Table 26

HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface soil and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface soil contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the surface soil, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratio
No surface soil samples were collected from the MRS. All analytical data detected below levels of concern in other areas of the Former Camp Maxey. There is no human health or ecological risk associated with MC.			

CHF Scale	CHF Value	Sum the Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface soil to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Soil MC Hazard q

Table 27

HHE Module: Supplemental Contaminant Hazard Factor Table

<u>**Contaminant Hazard Factor (CHF)**</u>

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the **media** in which these contaminants are present. Then record all **contaminants**, their **maximum concentrations** and their **comparison values** (from Appendix B of the Primer) in the table below. Calculate and record the **ratio** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28

Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the **Contaminant Hazard**, **Migration Pathway**, and **Receptor Factors** for the media (from Tables 21–26) in the corresponding boxes below.
2. Record the media's three-letter combinations in the **Three-Letter Combination** boxes below (three-letter combinations are arranged from Hs to Ms to Ls).
3. Using the **HHE Ratings** provided below, determine each media's rating (A–G) and record the letter in the corresponding **Media Rating** box below.

Media (Source)	Contaminant Hazard Factor Value	Migratory Pathway Factor Value	Receptor Factor Value	Three-Letter Combination (Hs-Ms-Ls)	Media Rating (A-G)
Groundwater (Table 21)	--	--	--	--	--
Surface Water/Human Endpoint (Table 22)	--	--	--	--	--
Sediment/Human Endpoint (Table 23)	--	--	--	--	--
Surface Water/Ecological Endpoint (Table 24)	--	--	--	--	--
Sediment/Ecological Endpoint (Table 25)	--	--	--	--	--
Surface Soil (Table 26)	--	--	--	--	--

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the **HHE Module Rating** box.

Note:

An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE MODULE RATING	

HHE Ratings (for reference only)

Combination	Rating
HHH	A
HHM	B
HHL	C
HMM	C
HML	D
MMM	D
HLL	E
MML	E
MLL	F
LLL	G

Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29

MRS Priority

DIRECTIONS: In the chart below, circle the letter **rating** for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical **priority** for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the **MRS Priority or Alternative MRS Rating** at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	**1**		
A	**2**	**B**	**2**	**A**	**2**
B	**3**	**C**	**3**	**B**	**3**
C	**4**	**D**	**4**	**C**	**4**
D	**5**	**E**	**5**	**D**	**5**
E	**6**	**F**	**6**	**E**	**6**
F	**7**	**G**	**7**	**F**	**7**
G	**8**			**G**	**8**
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		No Longer Required	
No Known or Suspected Explosive Hazard		**No Known or Suspected CWM Hazard**		**No Known or Suspected MC Hazard**	
MRS PRIORITY or ALTERNATIVE MRS RATING				**6**	

Table A
MRS Background Information

DIRECTIONS: Record the background information below for the MRS to be evaluated. Much of this information is available from Service and DoD databases. If the MRS is located on a FUDS property, the suitable FUDS property information should be substituted. In the **MRS Summary**, briefly describe the UXO, DMM, or MC that are known or suspected to be present, the exposure setting (the MRS's physical environment), any other incidental nonmunitions-related contaminants (e.g., benzene, trichloroethylene) found at the MRS, and any potentially exposed human and ecological receptors. If possible, include a map of the MRS.

Munitions Response Site Name: Bivouac Area
Component: U.S. Army

Installation/Property Name: Camp Maxey FUDS

Location (City, County, State): Paris, Lamar County, TX

Site Name/Project Name (Project No.): Former Camp Maxey (K06TX0305) **PRDF/FRMD**:____________________

Date Information Entered/Updated: December 2013

Point of Contact (Name/Phone): Layne Young (410.332.4806)

Project Phase (check only one): RI/FS

q PA	q SI	ü RI	ü FS	q RD
q RA-C	q RIP	q RA-O	q RC	q LTM

Note: This Draft MRSPP was created in coordination with the U.S. Army Corps of Engineers and additional project stakeholders. Prior to being finalized the MRSPP will be included in a public notice and will be available for public review.

Media Evaluated (check all that apply):

q Groundwater	q Sediment (human receptor)
q Surface soil	q Surface Water (ecological receptor)
q Sediment (ecological receptor)	q Surface Water (human receptor)

MRS Summary:
MRS Description: Describe the munitions-related activities that occurred at the installation, the dates of operation, and the UXO, DMM, or MC known or suspected to be present. When possible, identify munitions, CWM, and MC by type:

This MRS is approximately 1,125 acres that fall outside of the current MRS boundary identified in FUDSMIS and was not characterized or evaluated in the RI/FS. It is an area previously identified as a Bivouac area. MEC has been located in portions of this area. Additional data is needed to characterize the MRS. (RI/FS Report [EOTI, 2014]; Table 4-1)

Description of Pathways for Human and Ecological Receptors:
Potentially complete pathways exist for recreational users, outdoor site workers, and biota for MEC in the surface and subsurface. Incomplete pathways exist for all human and ecological receptors for MC. (RI/FS Report [EOTI, 2014]; Section 5.1.2)

Table 1

EHE Module: Munitions Type Data Element Table

DIRECTIONS: Below are 11 classifications of munitions and their descriptions. Circle the scores that correspond with **all** the munitions types known or suspected to be present at the MRS.

Note: The terms *practice munitions, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Sensitive	W UXO that are considered most likely to function upon any interaction with exposed persons (e.g., submunitions, 40mm high-explosive [HE] grenades, white phosphorus [WP] munitions, high-explosive antitank [HEAT] munitions, and practice munitions with sensitive fuzes, but excluding all other practice munitions). W Hand grenades containing energetic filler. W Bulk primary explosives, or mixtures of these with environmental media, such that the mixture poses an explosive hazard.	30
High explosive (used or damaged)	W UXO containing a high-explosive filler (e.g., RDX, Composition B), that are not considered "sensitive." W DMM containing a high-explosive filler that have: § Been damaged by burning or detonation § Deteriorated to the point of instability.	25
Pyrotechnic (used or damaged)	W UXO containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades). W DMM containing a pyrotechnic filler other than white phosphorus (e.g., flares, signals, simulators, smoke grenades) that have: § Been damaged by burning or detonation § Deteriorated to the point of instability.	20
High explosive (unused)	W DMM containing a high-explosive filler that: § Have not been damaged by burning or detonation § Are not deteriorated to the point of instability.	15
Propellant	W UXO containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). W DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor) that are: § Damaged by burning or detonation § Deteriorated to the point of instability.	15
Bulk secondary high explosives, pyrotechnics, or propellant	W DMM containing mostly single-, double-, or triple-based propellant, or composite propellants (e.g., a rocket motor). W DMM that are bulk secondary high explosives, pyrotechnic compositions, or propellant (not contained in a munition), or mixtures of these with environmental media such that the mixture poses an explosive hazard.	10
Pyrotechnic (not used or damaged)	W DMM containing a pyrotechnic filler (i.e., red phosphorus), other than white phosphorus filler, that: § Have not been damaged by burning or detonation § Are not deteriorated to the point of instability.	10
Practice	W UXO that are practice munitions that are not associated with a sensitive fuze. W DMM that are practice munitions that are not associated with a sensitive fuze and that have not: § Been damaged by burning or detonation § Deteriorated to the point of instability.	5
Riot control	W UXO or DMM containing a riot control agent filler (e.g., tear gas).	3
Small arms	W Used munitions or DMM that are categorized as small arms ammunition. (Physical evidence or historical evidence that no other types of munitions [e.g., grenades, subcaliber training rockets, demolition charges] were used or are present on the MRS is required for selection of this category.)	2
Evidence of no munitions	W Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
MUNITIONS TYPE	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 30).	**30**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Munitions Type*** classifications in the space provided.

Evidence of hand grenades, rifle grenades, 60mm mortar flares, and 2.36–inch rockets have been found at the site. (EE/CA Report [Parsons. 2000]; Section 2.3.5)

Table 2
EHE Module: Source of Hazard Data Element Table

DIRECTIONS: Below are 11 classifications describing sources of explosive hazards. Circle the scores that correspond with **all** the sources of explosive hazards known or suspected to be present at the MRS.

Note: The terms *former range, practice munitions, small arms range, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Former range	w The MRS is a former military range where munitions (including practice munitions with sensitive fuzes) have been used. Such areas include impact or target areas and associated buffer and safety zones.	10
Former munitions treatment (i.e., OB/OD) unit	w The MRS is a location where UXO or DMM (e.g., munitions, bulk explosives, bulk pyrotechnic, or bulk propellants) were burned or detonated for the purpose of treatment prior to disposal.	8
Former practice munitions range	w The MRS is a former military range on which only practice munitions without sensitive fuzes were used.	6
Former maneuver area	w The MRS is a former maneuver area where no munitions other than flares, simulators, smokes, and blanks were used. There must be evidence that no other munitions were used at the location to place an MRS into this category.	5
Former burial pit or other disposal area	w The MRS is a location where DMM were buried or disposed of (e.g., disposed of into a water body) without prior thermal treatment.	5
Former industrial operating facilities	w The MRS is a location that is a former munitions maintenance, manufacturing, or demilitarization facility.	4
Former firing points	w The MRS is a firing point, where the firing point is delineated as an MRS separate from the rest of a former military range.	4
Former missile or air defense artillery emplacements	w The MRS is a former missile defense or air defense artillery (ADA) emplacement not associated with a military range.	2
Former storage or transfer points	w The MRS is a location where munitions were stored or handled for transfer between different modes of transportation (e.g., rail to truck, truck to weapon system).	2
Former small arms range	w The MRS is a former military range where only small arms ammunition was used. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present to place an MRS into this category.)	1
Evidence of no munitions	w Following investigation of the MRS, there is physical evidence that no UXO or DMM are present, or there is historical evidence indicating that no UXO or DMM are present.	0
SOURCE OF HAZARD	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 10).	**10**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Source of Hazard*** classifications in the space provided.

The Bivouac Area was designated as such in the 2000 EE/CA. Former Range was selected because evidence of hand grenades, rifle grenades, 60mm mortar flares, and 2.36–inch rockets have been found at the site. (EE/CA Report [Parsons. 2000]; Section 2.3.5)

Table 3

EHE Module: Location of Munitions Data Element Table

DIRECTIONS: Below are eight classifications of munitions locations and their descriptions. Circle the scores that correspond with **all** the locations where munitions are known or suspected to be present at the MRS.

Note: The terms *confirmed, surface, subsurface, small arms ammunition, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
Confirmed surface	W Physical evidence indicates that there are UXO or DMM on the surface of the MRS. W Historical evidence (i.e., a confirmed report such as an explosive ordnance disposal [EOD], police, or fire department report that an incident or accident that involved UXO or DMM occurred) indicates there are UXO or DMM on the surface of the MRS.	25
Confirmed subsurface, active	W Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS, and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM. W Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, tidal action), or intrusive activities (e.g., plowing, construction, dredging) at the MRS are likely to expose UXO or DMM.	20
Confirmed subsurface, stable	W Physical evidence indicates the presence of UXO or DMM in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed. W Historical evidence indicates that UXO or DMM are located in the subsurface of the MRS and the geological conditions at the MRS are not likely to cause UXO or DMM to be exposed, in the future, by naturally occurring phenomena, or intrusive activities at the MRS are not likely to cause UXO or DMM to be exposed.	15
Suspected (physical evidence)	W There is physical evidence (e.g., munitions debris such as fragments, penetrators, projectiles, shell casings, links, fins), other than the documented presence of UXO or DMM, indicating that UXO or DMM may be present at the MRS.	10
Suspected (historical evidence)	W There is historical evidence indicating that UXO or DMM may be present at the MRS.	5
Subsurface, physical constraint	W There is physical or historical evidence indicating that UXO or DMM may be present in the subsurface, but there is a physical constraint (e.g., pavement, water depth over 120 feet) preventing direct access to the UXO or DMM.	2
Small arms (regardless of location)	W The presence of small arms ammunition is confirmed or suspected, regardless of other factors such as geological stability. (There must be evidence that no other types of munitions [e.g., grenades] were used or are present at the MRS to place an MRS into this category.)	1
Evidence of no munitions	W Following investigation of the MRS, there is physical evidence that there are no UXO or DMM present, or there is historical evidence indicating that no UXO or DMM are present.	0
LOCATION OF MUNITIONS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 25).	**20**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Location of Munitions*** classifications in the space provided.

A green star rifle grenade was found in the subsurface and reported in the 2000 EE/CA. Additionally, numerous MD has been on the surface and in the subsurface at the Bivouac Area. (EE/CA Report [Parsons. 2000]; Section 2.3.5)

Table 4
EHE Module: Ease of Access Data Element Table

DIRECTIONS: Below are four classifications of barrier types that can surround an MRS and their descriptions. The barrier type is directly related to the ease of public access to the MRS. Circle the score that corresponds with the ease of access to the MRS.
Note: The term *barrier* is defined in Appendix C of the Primer.

Classification	Description	Score
No barrier	w There is no barrier preventing access to any part of the MRS (i.e., all parts of the MRS are accessible).	10
Barrier to MRS access is incomplete	w There is a barrier preventing access to parts of the MRS, but not the entire MRS.	8
Barrier to MRS access is complete but not monitored	w There is a barrier preventing access to all parts of the MRS, but there is no surveillance (e.g., by a guard) to ensure that the barrier is effectively preventing access to all parts of the MRS.	5
Barrier to MRS access is complete and monitored	w There is a barrier preventing access to all parts of the MRS, and there is active, continual surveillance (e.g., by a guard, video monitoring) to ensure that the barrier is effectively preventing access to all parts of the MRS.	0
EASE OF ACCESS	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 10).	**10**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ease of Access*** classification in the space provided.

No barriers currently exist for the MRS. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 5
EHE Module: Status of Property Data Element Table

DIRECTIONS: Below are three classifications of the status of a property within the Department of Defense (DoD) and their descriptions. Circle the score that corresponds with the status of property at the MRS.

Classification	Description	Score
Non-DoD control	w The MRS is at a location that is no longer owned by, leased to, or otherwise possessed or used by DoD. Examples are privately owned land or water bodies; land or water bodies owned or controlled by state, tribal, or local governments; and land or water bodies managed by other federal agencies. w The MRS is at a location that is owned by DoD, but that DoD has leased to another entity and for which DoD does not control access 24 hours per day.	5
Scheduled for transfer from DoD control	w The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD, and DoD plans to transfer that land or water body to the control of another entity (e.g., a state, tribal, or local government; a private party; another federal agency) within 3 years from the date the Protocol is applied.	3
DoD control	w The MRS is on land or is a water body that is owned, leased, or otherwise possessed by DoD. With respect to property that is leased or otherwise possessed, DoD must control access to the MRS 24 hours per day, every day of the calendar year.	0
STATUS OF PROPERTY	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Status of Property*** classification in the space provided.

Portions of the property within the Bivouac Area are privately owned. Other portions of the area are owned by the federal government. (RI/FS Report [EOTI, 2014]; Table 4-1)

Table 6

EHE Module: Population Density Data Element Table

DIRECTIONS: Below are three classifications for population density and their descriptions. Determine the population density per square mile that most closely corresponds with the population of the MRS, including the area within a two-mile radius of the MRS's perimeter. Circle the most appropriate score.

Note: Use the U.S. Census Bureau tract data available to capture the **highest** population density within a two-mile radius of the perimeter of the MRS.

Classification	Description	Score
> 500 persons per square mile	w There are more than 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	5
100–500 persons per square mile	w There are 100 to 500 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	3
< 100 persons per square mile	w There are fewer than 100 persons per square mile in the U.S. Census Bureau tract in which the MRS is located.	1
POPULATION DENSITY	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**1**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Density*** classification in the space provided.

According to U.S. Census data, the population density for Lamar County, TX is 55 persons per square mile. (Lamar County QuickFacts [U.S. Census Bureau]; http://quickfacts.census.gov/qfd/states/48/48277.html)

Table 7

EHE Module: Population Near Hazard Data Element Table

DIRECTIONS: Below are six classifications describing the number of inhabited structures near the MRS. The number of inhabited buildings relates to the potential population near the MRS. Determine the number of inhabited structures within two miles of the MRS boundary and circle the score that corresponds with the number of inhabited structures.

Note: The term *inhabited structures* is defined in Appendix C of the Primer.

Classification	Description	Score
26 or more inhabited structures	w There are 26 or more inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	5
16 to 25 inhabited structures	w There are 16 to 25 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	4
11 to 15 inhabited structures	w There are 11 to 15 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	3
6 to 10 inhabited structures	w There are 6 to 10 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	2
1 to 5 inhabited structures	w There are 1 to 5 inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	1
0 inhabited structures	w There are no inhabited structures located up to 2 miles from the boundary of the MRS, within the boundary of the MRS, or both.	0
POPULATION NEAR HAZARD	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Population Near Hazard*** classification in the space provided.

There are greater than 26 inhabited structures within 2 miles from the boundary of the MRS. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 8

EHE Module: Types of Activities/Structures Data Element Table

DIRECTIONS: Below are five classifications of activities and/or inhabited structures and their descriptions. Review the types of activities that occur and/or structures that are present within two miles of the MRS and circle the scores that correspond with **all** the activities/structure classifications at the MRS.

Note: The term *inhabited structure* is defined in Appendix C of the Primer.

Classification	Description	Score
Residential, educational, commercial, or subsistence	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with any of the following purposes: residential, educational, child care, critical assets (e.g., hospitals, fire and rescue, police stations, dams), hotels, commercial, shopping centers, playgrounds, community gathering areas, religious sites, or sites used for subsistence hunting, fishing, and gathering.	5
Parks and recreational areas	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with parks, nature preserves, or other recreational uses.	4
Agricultural, forestry	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with agriculture or forestry.	3
Industrial or warehousing	Activities are conducted, or inhabited structures are located up to two miles from the MRS's boundary or within the MRS's boundary, that are associated with industrial activities or warehousing.	2
No known or recurring activities	There are no known or recurring activities occurring up to two miles from the MRS's boundary or within the MRS's boundary.	1
TYPES OF ACTIVITIES/STRUCTURES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**5**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Types of Activities/Structures*** classifications in the space provided.

There are residential, recreational (Pat Mayse WMA and State Park) , agricultural, and commercial land uses within two miles of the MRS. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 9

EHE Module: Ecological and/or Cultural Resources Data Element Table

DIRECTIONS: Below are four classifications of ecological and/or cultural resources and their descriptions. Review the types of resources present and circle the score that corresponds with the ecological and/or cultural resources present on the MRS.

Note: The terms *ecological resources* and *cultural resources* are defined in Appendix C of the Primer.

Classification	Description	Score
Ecological and cultural resources present	w There are both ecological and cultural resources present on the MRS.	5
Ecological resources present	w There are ecological resources present on the MRS.	3
Cultural resources present	w There are cultural resources present on the MRS.	3
No ecological or cultural resources present	w There are no ecological resources or cultural resources present on the MRS.	0
ECOLOGICAL AND/OR CULTURAL RESOURCES	**DIRECTIONS:** Record **the single highest score** from above in the box to the right (maximum score = 5).	**0**

DIRECTIONS: Document any MRS-specific data used in selecting the ***Ecological and/or Cultural Resources*** classification in the space provided.

While several threatened and endangered species are known to inhabit the area in and around Lamar County, there are no known cultural or ecological resources present at the MRS. (RI/FS Report [EOTI, 2014]; Section 2.1.2)

Table 10
Determining the EHE Module Rating

DIRECTIONS:

1. From Tables 1–9, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **EHE Module Total** box below.
4. Circle the appropriate range for the **EHE Module Total** below.
5. Circle the **EHE Module Rating** that corresponds to the range selected and record this value in the **EHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
Explosive Hazard Factor Data Elements			
Munitions Type	Table 1	30	40
Source of Hazard	Table 2	10	
Accessibility Factor Data Elements			
Location of Munitions	Table 3	20	35
Ease of Access	Table 4	10	
Status of Property	Table 5	5	
Receptor Factor Data Elements			
Population Density	Table 6	1	11
Population Near Hazard	Table 7	5	
Types of Activities/Structures	Table 8	5	
Ecological and/or Cultural Resources	Table 9	0	
EHE MODULE TOTAL			86

EHE Module Total	EHE Module Rating
92 to 100	A
82 to 91	**B**
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected Explosive Hazard
EHE MODULE RATING	**B**

Table 11

CHE Module: CWM Configuration Data Element Table

DIRECTIONS: Below are seven classifications of CWM configuration and their descriptions. Circle the scores that correspond with **all** the CWM configurations known or suspected to be present at the MRS.

Note: The terms *CWM/UXO, CWM/DMM, physical evidence,* and *historical evidence* are defined in Appendix C of the Primer.

Classification	Description	Score
CWM, that are either UXO, or explosively configured damaged DMM	The CWM known or suspected of being present at the MRS are: w CWM that are UXO (i.e., CWM/UXO) w Explosively configured CWM that are DMM (i.e., CWM/DMM) that have been damaged.	30
CWM mixed with UXO	w The CWM known or suspected of being present at the MRS are undamaged CWM/DMM or CWM not configured as a munition that are commingled with conventional munitions that are UXO.	25
CWM, explosive configuration that are undamaged DMM	w The CWM known or suspected of being present at the MRS are explosively configured CWM/DMM that have not been damaged.	20
CWM/DMM, not explosively configured or CWM, bulk container	The CWM known or suspected of being present at the MRS are: w Nonexplosively configured CWM/DMM either damaged or undamaged w Bulk CWM (e.g., ton container).	15
CAIS K941 and CAIS K942	w The CWM/DMM known or suspected of being present at the MRS are CAIS K941-toxic gas set M-1 or CAIS K942-toxic gas set M-2/E11.	12
CAIS (chemical agent identification sets)	w CAIS, other than CAIS K941 and K942, are known or suspected of being present at the MRS.	10
Evidence of no CWM	w Following investigation, the physical evidence indicates that CWM are not present at the MRS, or the historical evidence indicates that CWM are not present at the MRS.	0
CWM CONFIGURATION	**DIRECTIONS:** Record **<u>the single highest score</u>** from above in the box to the right (maximum score = 30).	0

DIRECTIONS: Document any MRS-specific data used in selecting the ***CWM Configuration*** classifications in the space provided.

There is no historical evidence that CWM was ever used at Camp Maxey. (RI/FS Report [EOTI, 2014]; Section 6.1.3)

Tables 12-19

No known or suspected CWM hazard is expected at this site. Therefore, Tables 12 through 19 have been intentionally omitted according to Active Army Guidance.

Table 20
Determining the CHE Module Rating

DIRECTIONS:

1. From Tables 11–19, record the data element scores in the **Score** boxes to the right.
2. Add the **Score** boxes for each of the three factors and record this number in the **Value** boxes to the right.
3. Add the three **Value** boxes and record this number in the **CHE Module Total** box below.
4. Circle the appropriate range for the **CHE Module Total** below.
5. Circle the **CHE Module Rating** that corresponds to the range selected and record this value in the **CHE Module Rating** box found at the bottom of the table.

Note:
An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more data elements, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

	Source	Score	Value
CWM Hazard Factor Data Elements			
CWM Configuration	Table 11	0	0
Sources of CWM	Table 12	--	
Accessibility Factor Data Elements			
Location of CWM	Table 13	--	--
Ease of Access	Table 14	--	
Status of Property	Table 15	--	
Receptor Factor Data Elements			
Population Density	Table 16	--	--
Population Near Hazard	Table 17	--	
Types of Activities/Structures	Table 18	--	
Ecological and/or Cultural Resources	Table 19	--	
CHE MODULE TOTAL			0

CHE Module Total	CHE Module Rating
92 to 100	A
82 to 91	B
71 to 81	C
60 to 70	D
48 to 59	E
38 to 47	F
less than 38	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected CWM Hazard
CHE MODULE RATING	**No Known or Suspected CWM Hazard**

Table 21

HHE Module: Groundwater Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's groundwater and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional groundwater contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the groundwater, select the box at the bottom of the table.

Contaminant	Maximum Concentration (μg/L)	Comparison Value (μg/L)	Ratios
Groundwater samples were not collected.			
CHF Scale	**CHF Value**	**Sum The Ratios**	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the groundwater is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in groundwater has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the groundwater to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the groundwater receptors at the MRS.

Classification	Description	Value
Identified	There is a threatened water supply well downgradient of the source and the groundwater is a current source of drinking water or source of water for other beneficial uses such as irrigation/agriculture (equivalent to Class I or IIA aquifer).	H
Potential	There is no threatened water supply well downgradient of the source and the groundwater is currently or potentially usable for drinking water, irrigation, or agriculture (equivalent to Class I, IIA, or IIB aquifer).	M
Limited	There is no potentially threatened water supply well downgradient of the source and the groundwater is not considered a potential source of drinking water and is of limited beneficial use (equivalent to Class IIIA or IIIB aquifer, or where perched aquifer exists only).	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Groundwater MC Hazard q

Table 22

HHE Module: Surface Water – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (μg/L)	Comparison Value (μg/L)	Ratios
Surface water samples were not collected.			

CHF Scale	CHF Value	Sum The Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Water (Human Endpoint) MC Hazard q

Table 23

HHE Module: Sediment – Human Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with human endpoints present in the sediment, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
Sediment Samples were not collected			

CHF Scale	CHF Value	Sum The Ratios	
CHF > 100	H (High)		
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		

$$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$$

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right maximum value = H).	

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Sediment (Human Endpoint) MC Hazard q

Table 24

HHE Module: Surface Water – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface water and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface water contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the surface water, select the box at the bottom of the table.

Contaminant	Maximum Concentration (mg/L)	Comparison Value (mg/L)	Ratios
Surface water samples were not collected.			
CHF Scale	**CHF Value**	**Sum the Ratios**	
CHF > 100	**H (High)**	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	**M (Medium)**		
2 > CHF	**L (Low)**		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface water is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface water has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface water to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface water receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface water to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface water to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface water to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Water (Ecological Endpoint) MC Hazard q

Table 25

HHE Module: Sediment – Ecological Endpoint Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's sediment and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional sediment contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard with ecological endpoints present in the sediment, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
Sediment samples were not collected.			

CHF Scale	CHF Value	Sum the Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{\text{[Maximum Concentration of Contaminant]}}{\text{[Comparison Value for Contaminant]}}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		

CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).	

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the sediment is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in sediment has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the sediment to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the sediment receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to sediment to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to sediment to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to sediment to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Sediment (Ecological Endpoint) MC Hazard q

Table 26

HHE Module: Surface Soil Data Element Table

Contaminant Hazard Factor (CHF)

DIRECTIONS: Record the **maximum concentrations** of all contaminants in the MRS's surface soil and their **comparison values** (from Appendix B of the Primer) in the table below. Additional contaminants can be recorded on Table 27. Calculate and record the **ratios** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** by adding the contaminant **ratios** together, including any additional surface soil contaminants recorded on Table 27. Based on the **CHF**, use the **CHF Scale** to determine and record the **CHF Value**. If there is no known or suspected MC hazard present in the surface soil, select the box at the bottom of the table.

.

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratio
No surface soil samples were collected from the Bivouac Area. All analytical data detected below levels of concern in other areas of the Former Camp Maxey. There is no human health or ecological risk associated with MC.			

CHF Scale	CHF Value	Sum the Ratios	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CONTAMINANT HAZARD FACTOR	**DIRECTIONS:** Record **the CHF Value** from above in the box to the right (maximum value = H).		

Migratory Pathway Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil migratory pathway at the MRS.

Classification	Description	Value
Evident	Analytical data or observable evidence indicates that contamination in the surface soil is present at, moving toward, or has moved to a point of exposure.	H
Potential	Contamination in surface soil has moved only slightly beyond the source (i.e., tens of feet), could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined.	M
Confined	Information indicates a low potential for contaminant migration from the source via the surface soil to a potential point of exposure (possibly due to the presence of geological structures or physical controls).	L
MIGRATORY PATHWAY FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

Receptor Factor

DIRECTIONS: Circle the value that corresponds most closely to the surface soil receptors at the MRS.

Classification	Description	Value
Identified	Identified receptors have access to surface soil to which contamination has moved or can move.	H
Potential	Potential for receptors to have access to surface soil to which contamination has moved or can move.	M
Limited	Little or no potential for receptors to have access to surface soil to which contamination has moved or can move.	L
RECEPTOR FACTOR	**DIRECTIONS:** Record **the single highest value** from above in the box to the right (maximum value = H).	

No Known or Suspected Surface Soil MC Hazard q

Table 27

HHE Module: Supplemental Contaminant Hazard Factor Table

<u>**Contaminant Hazard Factor (CHF)**</u>

DIRECTIONS: Only use this table if there are more than five contaminants in any given medium present at the MRS. This is a supplemental table designed to hold information about contaminants that do not fit in the previous tables. Indicate the **media** in which these contaminants are present. Then record all **contaminants**, their **maximum concentrations** and their **comparison values** (from Appendix B of the Primer) in the table below. Calculate and record the **ratio** for each contaminant by dividing the **maximum concentration** by the **comparison value**. Determine the **CHF** for each medium on the appropriate media-specific tables.

Note: Do not add ratios from different media.

Media	Contaminant	Maximum Concentration	Comparison Value	Ratio

Table 28

Determining the HHE Module Rating

DIRECTIONS:

1. Record the letter values (H, M, L) for the **Contaminant Hazard**, **Migration Pathway**, and **Receptor Factors** for the media (from Tables 21–26) in the corresponding boxes below.
2. Record the media's three-letter combinations in the **Three-Letter Combination** boxes below (three-letter combinations are arranged from Hs to Ms to Ls).
3. Using the **HHE Ratings** provided below, determine each media's rating (A–G) and record the letter in the corresponding **Media Rating** box below.

Media (Source)	Contaminant Hazard Factor Value	Migratory Pathway Factor Value	Receptor Factor Value	Three-Letter Combination (Hs-Ms-Ls)	Media Rating (A-G)
Groundwater (Table 21)	--	--	--	--	--
Surface Water/Human Endpoint (Table 22)	--	--	--	--	--
Sediment/Human Endpoint (Table 23)	--	--	--	--	--
Surface Water/Ecological Endpoint (Table 24)	--	--	--	--	--
Sediment/Ecological Endpoint (Table 25)	--	--	--	--	--
Surface Soil (Table 26)	--	--	--	--	--

DIRECTIONS (cont.):

4. Select the single highest Media Rating (A is highest; G is lowest) and enter the letter in the **HHE Module Rating** box.

Note:

An alternative module rating may be assigned when a module letter rating is inappropriate. An alternative module rating is used when more information is needed to score one or more media, contamination at an MRS was previously addressed, or there is no reason to suspect contamination was ever present at an MRS.

HHE MODULE RATING	--

HHE Ratings (for reference only)

Combination	Rating
HHH	A
HHM	B
HHL	C
HMM	
HML	D
MMM	
HLL	E
MML	
MLL	F
LLL	G
Alternative Module Ratings	Evaluation Pending
	No Longer Required
	No Known or Suspected MC Hazard

Table 29
MRS Priority

DIRECTIONS: In the chart below, circle the letter **rating** for each module recorded in Table 10 (EHE), Table 20 (CHE), and Table 28 (HHE). Circle the corresponding numerical **priority** for each module. If information to determine the module rating is not available, choose the appropriate alternative module rating. The MRS Priority is the single highest priority; record this relative priority in the **MRS Priority or Alternative MRS Rating** at the bottom of the table.

Note: An MRS assigned Priority 1 has the highest relative priority; an MRS assigned Priority 8 has the lowest relative priority. Only an MRS with CWM known or suspected to be present can be assigned Priority 1; an MRS that has CWM known or suspected to be present cannot be assigned Priority 8.

EHE Rating	Priority	CHE Rating	Priority	HHE Rating	Priority
		A	1		
A	2	B	2	A	2
B	3	C	3	B	3
C	4	D	4	C	4
D	5	E	5	D	5
E	6	F	6	E	6
F	7	G	7	F	7
G	8			G	8
Evaluation Pending		Evaluation Pending		Evaluation Pending	
No Longer Required		No Longer Required		No Longer Required	
No Known or Suspected Explosive Hazard		**No Known or Suspected CWM Hazard**		**No Known or Suspected MC Hazard**	
MRS PRIORITY or ALTERNATIVE MRS RATING				**3**	

APPENDIX G: PROUCL OUTPUT
MILITARY MUNITIONS RESPONSE PROGRAM
REMEDIAL INVESTIGATION/FEASIBILITY STUDY

FORMER CAMP MAXEY
Paris, Texas

Attachment 1. UCL Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	11/12/2013 9:11:16 AM
From File	WorkSheet.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	10000

Cu

General Statistics

Total Number of Observations	38	Number of Distinct Observations	24
		Number of Missing Observations	0
Minimum	1.2	Mean	3.568
Maximum	15	Median	2.333
SD	3.115	Std. Error of Mean	0.505
Coefficient of Variation	0.873	Skewness	2.247

Normal GOF Test

Shapiro Wilk Test Statistic	0.692	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.938	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.27	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.144	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	4.421	95% Adjusted-CLT UCL (Chen-1995)	4.596
		95% Modified-t UCL (Johnson-1978)	4.452

Gamma GOF Test

A-D Test Statistic	2.534	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.758	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.218	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.145	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	2.223	k star (bias corrected MLE)	2.065
Theta hat (MLE)	1.605	Theta star (bias corrected MLE)	1.728
nu hat (MLE)	168.9	nu star (bias corrected)	156.9
MLE Mean (bias corrected)	3.568	MLE Sd (bias corrected)	2.483
		Approximate Chi Square Value (0.05)	129
Adjusted Level of Significance	0.0434	Adjusted Chi Square Value	127.9

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	4.342	95% Adjusted Gamma UCL (use when n<50)	4.378

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.877	**Shapiro Wilk Lognormal GOF Test**

5% Shapiro Wilk Critical Value	0.938	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.178	**Lilliefors Lognormal GOF Test**	
5% Lilliefors Critical Value	0.144	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	0.182	Mean of logged Data	1.031
Maximum of Logged Data	2.708	SD of logged Data	0.641

Assuming Lognormal Distribution

95% H-UCL	4.262	90% Chebyshev (MVUE) UCL	4.565
95% Chebyshev (MVUE) UCL	5.085	97.5% Chebyshev (MVUE) UCL	5.805
99% Chebyshev (MVUE) UCL	7.221		

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Distribution Free UCLs

95% CLT UCL	4.399	95% Jackknife UCL	4.421
95% Standard Bootstrap UCL	4.388	95% Bootstrap-t UCL	4.798
95% Hall's Bootstrap UCL	4.703	95% Percentile Bootstrap UCL	4.41
95% BCA Bootstrap UCL	4.609		
90% Chebyshev(Mean, Sd) UCL	5.084	95% Chebyshev(Mean, Sd) UCL	5.771
97.5% Chebyshev(Mean, Sd) UCL	6.724	99% Chebyshev(Mean, Sd) UCL	8.596

Suggested UCL to Use

95% Chebyshev (Mean, Sd) UCL	5.771

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

Pb

General Statistics

Total Number of Observations	38	Number of Distinct Observations	29
		Number of Missing Observations	0
Minimum	4.3	Mean	11.16
Maximum	42	Median	9.85
SD	6.525	Std. Error of Mean	1.058
Coefficient of Variation	0.585	Skewness	3.088

Normal GOF Test

Shapiro Wilk Test Statistic	0.726	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.938	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.205	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.144	Data Not Normal at 5% Significance Level	

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

105	**95% Normal UCL**		**95% UCLs (Adjusted for Skewness)**	
106	95% Student's-t UCL	12.95	95% Adjusted-CLT UCL (Chen-1995)	13.47
107			95% Modified-t UCL (Johnson-1978)	13.04
108				
109	**Gamma GOF Test**			
110	A-D Test Statistic	0.738	**Anderson-Darling Gamma GOF Test**	
111	5% A-D Critical Value	0.751	Detected data appear Gamma Distributed at 5% Significance Level	
112	K-S Test Statistic	0.128	**Kolmogrov-Smirnoff Gamma GOF Test**	
113	5% K-S Critical Value	0.144	Detected data appear Gamma Distributed at 5% Significance Level	
114	**Detected data appear Gamma Distributed at 5% Significance Level**			
115				
116	**Gamma Statistics**			
117	k hat (MLE)	4.661	k star (bias corrected MLE)	4.311
118	Theta hat (MLE)	2.394	Theta star (bias corrected MLE)	2.589
119	nu hat (MLE)	354.3	nu star (bias corrected)	327.6
120	MLE Mean (bias corrected)	11.16	MLE Sd (bias corrected)	5.376
121			Approximate Chi Square Value (0.05)	286.7
122	Adjusted Level of Significance	0.0434	Adjusted Chi Square Value	285.1
123				
124	**Assuming Gamma Distribution**			
125	95% Approximate Gamma UCL (use when n>=50)	12.76	95% Adjusted Gamma UCL (use when n<50)	12.83
126				
127	**Lognormal GOF Test**			
128	Shapiro Wilk Test Statistic	0.966	**Shapiro Wilk Lognormal GOF Test**	
129	5% Shapiro Wilk Critical Value	0.938	Data appear Lognormal at 5% Significance Level	
130	Lilliefors Test Statistic	0.0947	**Lilliefors Lognormal GOF Test**	
131	5% Lilliefors Critical Value	0.144	Data appear Lognormal at 5% Significance Level	
132	**Data appear Lognormal at 5% Significance Level**			
133				
134	**Lognormal Statistics**			
135	Minimum of Logged Data	1.459	Mean of logged Data	2.301
136	Maximum of Logged Data	3.738	SD of logged Data	0.45
137				
138	**Assuming Lognormal Distribution**			
139	95% H-UCL	12.7	90% Chebyshev (MVUE) UCL	13.52
140	95% Chebyshev (MVUE) UCL	14.66	97.5% Chebyshev (MVUE) UCL	16.23
141	99% Chebyshev (MVUE) UCL	19.32		
142				
143	**Nonparametric Distribution Free UCL Statistics**			
144	**Data appear to follow a Discernible Distribution at 5% Significance Level**			
145				
146	**Nonparametric Distribution Free UCLs**			
147	95% CLT UCL	12.9	95% Jackknife UCL	12.95
148	95% Standard Bootstrap UCL	12.86	95% Bootstrap-t UCL	13.99
149	95% Hall's Bootstrap UCL	21.12	95% Percentile Bootstrap UCL	12.99
150	95% BCA Bootstrap UCL	13.6		
151	90% Chebyshev(Mean, Sd) UCL	14.34	95% Chebyshev(Mean, Sd) UCL	15.78
152	97.5% Chebyshev(Mean, Sd) UCL	17.77	99% Chebyshev(Mean, Sd) UCL	21.69
153				
154	**Suggested UCL to Use**			
155	95% Adjusted Gamma UCL	12.83		
156				

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

Ni

General Statistics

Total Number of Observations	38	Number of Distinct Observations	25
		Number of Missing Observations	0
Minimum	1.5	Mean	4.58
Maximum	13	Median	3.5
SD	3.044	Std. Error of Mean	0.494
Coefficient of Variation	0.665	Skewness	1.715

Normal GOF Test

Shapiro Wilk Test Statistic	0.748	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.938	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.3	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.144	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	5.413	95% Adjusted-CLT UCL (Chen-1995)	5.539
		95% Modified-t UCL (Johnson-1978)	5.436

Gamma GOF Test

A-D Test Statistic	2.155	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.754	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.233	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.144	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.25	k star (bias corrected MLE)	3.011
Theta hat (MLE)	1.409	Theta star (bias corrected MLE)	1.521
nu hat (MLE)	247	nu star (bias corrected)	228.8
MLE Mean (bias corrected)	4.58	MLE Sd (bias corrected)	2.639
		Approximate Chi Square Value (0.05)	194.8
Adjusted Level of Significance	0.0434	Adjusted Chi Square Value	193.5

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	5.379	95% Adjusted Gamma UCL (use when n<50)	5.416

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.908	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.938	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.191	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.144	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	0.405	Mean of logged Data	1.36
Maximum of Logged Data	2.565	SD of logged Data	0.542

Assuming Lognormal Distribution

95% H-UCL	5.37	90% Chebyshev (MVUE) UCL	5.745
95% Chebyshev (MVUE) UCL	6.312	97.5% Chebyshev (MVUE) UCL	7.099
99% Chebyshev (MVUE) UCL	8.645		

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Distribution Free UCLs

95% CLT UCL	5.392	95% Jackknife UCL	5.413
95% Standard Bootstrap UCL	5.377	95% Bootstrap-t UCL	5.652
95% Hall's Bootstrap UCL	5.515	95% Percentile Bootstrap UCL	5.416
95% BCA Bootstrap UCL	5.522		
90% Chebyshev(Mean, Sd) UCL	6.061	95% Chebyshev(Mean, Sd) UCL	6.733
97.5% Chebyshev(Mean, Sd) UCL	7.664	99% Chebyshev(Mean, Sd) UCL	9.494

Suggested UCL to Use

95% Chebyshev (Mean, Sd) UCL	6.733

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

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General Statistics

Total Number of Observations	38	Number of Distinct Observations	29
		Number of Missing Observations	0
Minimum	5.1	Mean	12.22
Maximum	34	Median	9.35
SD	7.688	Std. Error of Mean	1.247
Coefficient of Variation	0.629	Skewness	1.718

Normal GOF Test

Shapiro Wilk Test Statistic	0.75	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.938	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.298	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.144	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	14.33	95% Adjusted-CLT UCL (Chen-1995)	14.64
		95% Modified-t UCL (Johnson-1978)	14.38

Gamma GOF Test			
A-D Test Statistic	2.293	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.753	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.259	**Kolmogrov-Smirnoff Gamma GOF Test**	
5% K-S Critical Value	0.144	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	3.608	k star (bias corrected MLE)	3.34
Theta hat (MLE)	3.388	Theta star (bias corrected MLE)	3.659
nu hat (MLE)	274.2	nu star (bias corrected)	253.9
MLE Mean (bias corrected)	12.22	MLE Sd (bias corrected)	6.687
		Approximate Chi Square Value (0.05)	218
Adjusted Level of Significance	0.0434	Adjusted Chi Square Value	216.6
Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50))	14.23	95% Adjusted Gamma UCL (use when n<50)	14.32
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.889	**Shapiro Wilk Lognormal GOF Test**	
5% Shapiro Wilk Critical Value	0.938	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.227	**Lilliefors Lognormal GOF Test**	
5% Lilliefors Critical Value	0.144	Data Not Lognormal at 5% Significance Level	
Data Not Lognormal at 5% Significance Level			
Lognormal Statistics			
Minimum of Logged Data	1.629	Mean of logged Data	2.358
Maximum of Logged Data	3.526	SD of logged Data	0.513
Assuming Lognormal Distribution			
95% H-UCL	14.18	90% Chebyshev (MVUE) UCL	15.16
95% Chebyshev (MVUE) UCL	16.58	97.5% Chebyshev (MVUE) UCL	18.56
99% Chebyshev (MVUE) UCL	22.44		
Nonparametric Distribution Free UCL Statistics			
Data do not follow a Discernible Distribution (0.05)			
Nonparametric Distribution Free UCLs			
95% CLT UCL	14.27	95% Jackknife UCL	14.33
95% Standard Bootstrap UCL	14.23	95% Bootstrap-t UCL	15
95% Hall's Bootstrap UCL	14.55	95% Percentile Bootstrap UCL	14.35
95% BCA Bootstrap UCL	14.68		
90% Chebyshev(Mean, Sd) UCL	15.96	95% Chebyshev(Mean, Sd) UCL	17.66
97.5% Chebyshev(Mean, Sd) UCL	20.01	99% Chebyshev(Mean, Sd) UCL	24.63
Suggested UCL to Use			
95% Chebyshev (Mean, Sd) UCL	17.66		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

APPENDIX H: GIS DATA
MILITARY MUNITIONS RESPONSE PROGRAM
REMEDIAL INVESTIGATION/FEASIBILITY STUDY

FORMER CAMP MAXEY
Paris, Texas

GIS data is included in electronic format

APPENDIX I: TPP MEETING MINUTES
MILITARY MUNITIONS RESPONSE PROGRAM
REMEDIAL INVESTIGATION/FEASIBILITY STUDY

FORMER CAMP MAXEY
Paris, Texas

TECHNICAL PROJECT PLANNING (TPP) MEMORANDUM
For Remedial Investigation / Feasibility Study

Former Camp Maxey, Texas

Contract No. W912DY-04-D-0009
Task Order 0010

Prepared for:
U.S. Army Engineering and Support Center, Huntsville
4820 University Square
Huntsville, Alabama 35807

The project is located in the
U.S. Army Corps of Engineers, Fort Worth District
817 Taylor Street
Fort Worth, Texas 76102-0300

Prepared By:
Explosive Ordnance Technologies, Inc. (EOTI)
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EOTI
EXPLOSIVE ORDNANCE TECHNOLOGIES, INC.

February 2009

TECHNICAL PROJECT PLANNING (TPP) MEMORANDUM
For Remedial Investigation / Feasibility Study
Former Camp Maxey, Texas

MEETING MINUTES

DATE: 4 December 2008
LOCATION: Paris, Texas
TOPIC: TPP Meeting for the Former Camp Maxey
TITLE OF PROGRAM: Military Munitions Response Program (MMRP)
CONTRACT: Contract No. W912DY-04-D-0009; Task Order 0010
DIRECTIVE AGENCY: US Army Corps of Engineers (USACE)-Fort Worth District, Stephen Swint
FACILITATOR: EOTI Project Manager, Kathy Rollow

NOTES:

- *This TPP Memorandum is a record of the discussions that took place on the above referenced date about said site.*
- *Approval of this TPP Memorandum does not signify agreement with any or all items, only that this is an accurate record of what was discussed.*
- *A representative of the Texas Parks and Wildlife Department was not present at the meetings.*

<u>Introduction</u>

This TPP Memorandum details the events of the Remedial Investigation / Feasibility Study at the Former Camp Maxey in Lamar County, Texas. TPP meetings were previously held in Powderly (June 2008) and Paris (September 2008), Texas. Participants of the meeting included representatives from the USACE (Huntsville and Fort Worth District), US Environmental Protection Agency (EPA), Texas Commission on Environmental Quality (TCEQ), Lamar County, the City of Paris, and the Explosive Ordnance Technology, Inc. (EOTI) Team (see attendance list below). This TPP Memorandum describes the purpose and objectives of the TPP, the meeting attendees, the materials and documentation discussed/reviewed during the TPP, the list of handouts, other TPP documentation, changes/deletions/modifications to the TPP material, Data Quality Objectives (DQOs) and discussion items. The Phase 1 Memorandum for Record is attached in Appendix D.

<u>TPP Purpose and Objectives</u>

The purpose of the TPP meeting was to provide community leaders, state regulators, and other interested parties/stakeholders with an understanding of the Formerly Used Defense Site (FUDS) program, an overview of the TPP process, and develop project DQOs. Meeting objectives included the following:

- Present the problem and identify possible decisions to the community leaders, state regulators, and other interested parties/ stakeholders.
- Obtain feedback and other site specific information from the community leaders, state regulators, and other interested parties/ stakeholders.
- Review the proposed project schedule and eliminate conflicts for the path forward.
- Develop Project Specific DQOs.
- Conduct an Ordnance and Explosive (OE) Safety Review.

Attendance List

Name	Title	Company	Phone	Fax	E-Mail
Shannon Barrentine	Assistant for Pete Kampfer	Paris Economic Development Corp.	903-784-2501	903-984-2503	pedc@paristexas.com
Clyde Crews	Deputy Chief	Paris Fire Department	403-784-5252		ccrews@paristexas.gov
Doug Crist	Project Manager	Texas Commission on Environmental Quality	512-239-2575		dcrist@tceq.state.tx.us
David Farmer	Project Manager	EOTI	865-220-8668	865-220-8857	dfarmer@eoti.net
Mike Gooding	Project Engineer	USACE - Huntsville	256-895-1635	256-895-1602	michael.r.gooding@usace.army.mil
Eric Kirwan	Geophysicist	USACE – Fort Worth	817-886-1673	817-886-6525	Eric.kirwan@us.army.mil
Mike Madl	Project Manager	Malcolm Pirnie	713-960-7432	713-840-1207	mmadl@pirnie.com
Richard Mayer	Project Manager	U.S. Environmental Protection Agency	274-665-7442		Mayer.Richard@epamail.epa.gov
Priscilla McAnally	Library Director	City of Paris	903-785-8531	903-784-6325	pmcanally@paristexas.com
William Noel	Project Manager	USACE - Huntsville	256-895-1933	256-895-1378	william.f.noel@usace.army.mil
Karl Louis	Chief of Police	City of Paris	903-784-5252	903-783-4710	klouis@paristexas.gov
Kathy Rollow	Project Manager	EOTI	865-220-8668	865-220-8857	krollow@eoti.net
Stephen Swint	Project Manager	USACE – Fort Worth	817-886-1364		Stephen.swint@usace.army.mil

Materials and Documentation Discussed/Reviewed During TPP

The following documents were discussed during the TPP in order to provide the attendees with a familiarity of the site and a source of background information:

- Aerial Depictions of the Area Designated for Characterization including
    - Range Complex Locations
    - Historical Photo Analysis
    - Ordnance Previously Found on the Site Locations
- Conceptual Site Model (see Appendix A)

Handouts

The following handouts were distributed to the attendees of the TPP meeting for discussion:

- Agenda for TPP
- Slide presentation
- Attendee Sign-In Sheet
- Draft Data Quality Objectives

The Agenda set the stage for the meeting and was followed as provided. A copy of the slide presentations prepared and presented by the EOTI Team was provided to the attendees for future reference. At the conclusion of the TPP meeting the project schedule was reviewed.

Changes/Deletions/Modifications

No significant changes, deletions, or modifications were suggested among parties in attendance.

Discussion Items

Ms. Kathy Rollow, the Project Manager for the EOTI Team, gave the presentation and led the discussions that arose throughout. The following is a breakdown of the major discussion topics associated with the Former Camp Maxey:

- Community members expressed a concern about exposure risk on the lake shore during a severe drought and suggested including warnings as part of drought emergency procedures.

- Taking into consideration the various annual activities and events concurring around Pat Mayse Lake, the TPP Members concluded that February would be the least intrusive time to conduct field activities but agreed that the schedule would not allow for site work to begin before mid-March. The Project Schedule is attached as Appendix C.

- EOTI will perform digital geophysical mapping (DGM), utilizing the Geonics EM61 MK2 time domain electromagnetic (TDEM) system. Transects 3 feet wide with a 500 foot separation will be used over approximately 96 acres (see Appendix B, Figure B-3).

- Additional multi-incremental sampling decision unit sizes were proposed to augment the originally planned 10 meter squared (m^2) sampling grid. The additional grid sizes include 30 m^2 and 50 m^2. These additional grid size types will provide better quality sampling results for the MC investigation.

- The MC sampling effort at the former ranges will consist of a two-phased approach. First, sampling grids (decision units) will be placed in areas of known munitions use based on the historical aerial review, residential properties in which munitions were removed during previous removal actions, background locations, and at areas where the currently occurring removal action is being performed (northeast section of property). This phase of the effort can begin once the work plan is approved. The second phase of sampling, which will generally occur on the western and central portions of Camp Maxey, will not be conducted until after the new geophysical investigation / MEC characterization work is completed. This is because the project team needs to pinpoint the locations of the suspect ranges and the specific areas in which munitions are likely to be present, including firing points and target/impact areas prior to conducting sampling activities. These areas will not be known until the geophysical investigation is completed.

- The TPP members agreed with conducting triplicate MC sampling at a rate of 10% of the total sampling sites/decision units. Screening levels will be set at a state base value (e.g., background levels for metals and Tier I protective concentration levels (PCLs) for explosives). TCEQ verified that background levels for metals are available for the state and the county. The agreed upon target compound list is as follows:

Analyte	CAS Number	TRRP PCLs		TestAmerica	
		TotSoilCom	GWSoilIng	Lab MDL	Lab RL
HMX	2691-41-0	354.711	2.344	0.0227	0.1
RDX	121-82-4	42.713	0.037	0.043	0.2
1,3,5-TNB	99-35-4	1996.961	1.819	0.0138	0.1
1,3-DNB	99-65-0	6.478	0.008	0.0166	0.1
Tetryl	479-45-8	59.022	1.104	0.0439	0.2
NB	98-95-3	31.425	0.088	0.085	2
2,4,6-TNT	118-96-7	22.734	0.171	0.0307	0.1
4-Am-DNT	19406-51-0	9.844	0.067	0.0299	0.1
2-AM-DNT	35572-78-2	10.063	0.099	0.0329	0.1
2,4-DNT	121-14-2	6.909	0.005	0.0147	0.1
2,6-DNT	606-20-2	6.909	0.005	0.0191	0.1
2-NT	88-72-2	390.885	1.844	0.0472	0.2
3-NT	99-08-1	377.223	1.844	0.064	0.2
4-NT	99-99-0	376.003	1.844	0.0365	0.2

NG	55-63-0	4.660	0.010	0.215	2
PETN	78-11-5	26626.140	2477.360	0.493	2
3,5-DNA	618-87-1	Not Listed	Not Listed	0.009	0.1

Analyte	CAS Number	Texas State Background*	TRRP PCLs		TestAmerica	
			TotSoilCom	GWSoilIng	Lab MDL	Lab RL
Antimony	7440-36-0	1.0	14.957	5.411	0.38	2
Copper	7440-50-8	15.0	547.889	1042.491	0.217	5
Lead	7439-92-1	15.0	500.000	3.029	0.27	0.9
Zinc	7440-66-6	30.0	9921.474	2360.479	0.398	8
Mercury	7439-97-6	0.04	3.649	0.008	0.00553	0.033

*State background metals concentrations may be replaced with site-specific or county-based levels.

- Soil samples will not be ground by the analytical laboratory during analysis for metals.

- Members of the community informed the TPP Team that a water study committee has been formed to discuss the possibility of increasing the size of Pat Mayse Lake. The decision whether or not to proceed should be made by the end of the calendar year. It would be five to seven years before the construction would begin. TPP Members discussed that a change in the shoreline would change the risk areas and agreed that submitted decisions will include a note regarding the fact that a change in the location of the shoreline could affect the recommendations. A contour map of the lake was forwarded to the TCEQ.

- Community members concluded that Rights of Entry and Funding will be obstacles for conducting this project. The TCEQ suggested that we begin collecting rights of entry (ROE) as soon as possible. The 1st public meeting will be conducted 6 – 8 weeks prior to field activities and will be used to collect ROE. Community members suggested conducting separate meetings for each surrounding community.

Project Specific Data Quality Objectives

Data Quality Objectives for MEC Investigation

1. State the Problem
   - Information regarding the potential distribution of MEC at a site is limited or unavailable.
   - The MEC site boundaries are unknown relative to the presence of MEC at

a site.

- The extent and location of field sampling for the identification of the quantity and distribution of MEC is unknown.

2. Identify the Decision

    - Obtain data regarding the presence of MEC at the site.
    - Define the site boundaries.
    - Define the MEC sectors.
    - Define the locations and the area to be covered during field sampling.

3. Identify Inputs to the Decision

    - Historical information (e.g., interview records, field notes, aerial photos, maps) regarding potential MEC.
    - Observations:
        - Visual field MEC confirmation
            - Type(s) of MEC
            - Location(s) of MEC items
        - Proximity to inhabited locations and structures (public roads, recreation paths, homes, etc.)
        - Accessibility of the site
    - The Conceptual Site Model (i.e. historical information {interview records, field notes, aerial photographs, maps}, anticipated MEC type(s), anticipated MEC distribution, terrain and vegetation, current/proposed land use, and natural and cultural boundaries.)
    - Statistically calculated MEC densities based on historical use of area, previous MEC investigation and removals, and current field sampling data.
    - Present and/or future land use considerations (i.e., site coverage needs).
    - Statistical analysis tools.

4. Define Boundaries of Study

    - Established Sectors from the EE/CA will be utilized to subdivide investigation areas.
    - Limited to the ground surface and near surface.
    - Exclusive of areas with thick vegetative cover.
    - Time frame for collection.
    - Spatial boundary based on geophysical equipment capabilities for particular MEC types and site conditions.
    - Rights of Entry

5. Develop a Decision Rule

    - Sampling should be in an amount optimal to characterize the site.
        - Transects 3 feet wide
        - 500 foot separation
    - When reconnaissance indicates evidence of MEC use or proximity to areas of MEC use, field sampling for further characterization of MEC quantities and distribution will be recommended.

- If 1) historical information and 2) field sampling or statistical predictions indicate no evidence of MEC in an area, then the area may be reduced to contain only areas exhibiting evidence of MEC.
- If each sector has an approximately homogeneous MEC density, then the sectors at the site have been defined.
- If a sector is not homogenous with respect to MEC density, then the sector boundary must be redefined.
- If a sampling methodology will provide for sampling of a statistically representative portion of the site, then it will be implemented to define the locations and the area to be covered during field sampling.
- If a sampling methodology does not provide for sampling of a statistically representative portion of the site, it will be revised to do so by sampling design modification, or it will not be implemented.

6. Specify Tolerable Limits of Decision Error
    - If all the inputs to the decision rule were performed to the standard of Quality Control/Quality Assurance (QC/QA) procedures as specified in the QAPP and the Work Plan, then the error is within tolerable limits.
7. Optimize the Design for Obtaining Data
    - Each Sector will be prioritized systematically based on the recommended minimum survey requirement and statistical probability tools. Transects will be utilized to establish a contamination boundary and possibly reduce the area of interest.

Data Quality Objectives for MC Investigation

1. State the Problem
    - Determine whether MC associated with munitions used during training activities is present in surface soil at the former Camp Maxey
        - Assess concentrations of MC of concern
        - Assess potential exposure of receptors to impacted surface soil
        - Assess other media (dependent on results of surface soil sampling)
2. Identify the Decision
    - Determine the types of MC potentially released to the surface soil as a result of former Camp Maxey activities
    - Determine the range of MC concentrations in surface soil samples across the site
    - Estimate the spatial extent of MC in surface soil
3. Identify Inputs to the Decision
    - Historical information from previous uses of the site
    - Location of MEC and munitions debris identified in previous investigations

at the former Camp Maxey
- Location of range structures and other evidence of munitions based on additional MEC characterization/geophysical investigations to be completed in the field
- TRRP Protective Concentration Levels (PCLs) for soil
- Screening-level ecological risk assessment (if required)

4. Define the Boundaries of the Study

- Overall Camp Maxey boundary; MRS boundaries
- Multi-incremental surface soil samples
    - 10 meter (m) by 10 m sampling decision unit
        - 30 increments collected from top 2 inches of soil
    - 30 m by 30 m decision unit
        - 70 increments collected from top 2 inches of soil
    - 50 m by 50 m decision unit
        - 100 increments collected from top 2 inches of soil
- Decision units based on documentation of previous use and previous investigations/removals
    - MC is expected to be found in the known impact areas (especially areas with visible ground scarring or impact craters)
        - 50 m by 50 m grids to be used for impact areas
    - MC may be present in areas of previous removal actions and potentially areas outside the impact areas due to migration
- Decision units based on the intrinsic geophysical MEC investigation in fixed range locations
    - MC is expected to be found in front of and behind the firing lines, in target areas, and in other identified impact areas
        1. 30 m by 30 m grids to be used around firing lines, 10 m by 10 m grids to be used in target areas, and 50 m by 50 m grids to be used in down range impact areas
    - Surface soil from areas within the fixed ranges with identified MEC will also be sampled for MC

5. Develop a Decision Rule

- Compare analytical results to background levels (metals) and TRRP Tier 1 Residential PCLs (metals and explosives)
- If there are exceedances, additional samples will be collected to delineate the soil to the appropriate assessment levels
- If vertical delineation is necessary, a more extensive subsurface investigation will be conducted

6. Specify Tolerable Limits on Decision Errors

- Two possible decision errors for this project:
    - Concluding that the suspect medium (surface soil) within the boundaries of the study is contaminated when it is really not (Type I error)

    - Concluding that the soil within the boundaries of the study is not contaminated when it really is (Type II error).
  - Type I error is more tolerable; minimize Type II errors

7. Optimize the Design for Obtaining Data

  - Utilize multi-incremental sampling design to assure representativeness of sampling
  - Employ judgmental sampling – focus decision unit sampling locations at areas most likely to contain residual MC (firing points, target areas, impact areas)
  - Analyze at method quantitation limits (MQLs) that are equal to or lower than PCLs to minimize Type II errors

APPENDIX A
CONCEPTUAL SITE MODEL

TPP MEMORANDUM
REMEDIAL INVESTIGATION / FEASIBILITY STUDY
FORMER CAMP MAXEY
TEXAS

CONCEPTUAL SITE MODEL*
FOR

REMEDIAL INVESTIGATION / FEASIBLTY STUDY
FORMER CAMP MAXEY, TEXAS

CONTRACT NO. W912DY-04-D-0009
TASK ORDER NO. 0010

Prepared For:
U.S. Army Engineering & Support Center
CEHNC-CT
4820 University Square
Huntsville, Alabama 35816-1822

Prepared By:
Explosive Ordnance Technologies, Inc. (EOTI)
105 W. Tennessee Ave.
Oak Ridge, Tennessee 37830

May 29, 2008

*This is a living (or dynamic) document which may be continually edited and updated throughout the life of the project and is not intended for public release.

FORMER CAMP MAXEY

Conceptual Site Model Information Profiles Site Profile	
Information Needs	**Preliminary Information**
Installation Location	Lamar County, Texas; Paris, Texas
Installation Name	Camp Maxey
Installation Location	The former Camp Maxey site is located in northeast Texas, approximately 9 miles north of Paris, Texas, 1 mile west of Powderly, Texas, and U.S. Highway 271.
Installation History	From 1942 to 1945, Camp Maxey was a United States Army post utilized for training infantry in World War II (WWII). Following the conclusion of the war, the facility was inactivated in October 1945, and was declared surplus in 1947. Camp Maxey had a troop capacity of approximately 45,000 men. Three infantry divisions were trained at the installation. Training exercises at former Camp Maxey included the following live weapons training: pistols, carbines, rifles, tommy guns, automatic rifles, machine guns, mortars, bazookas, anti-tank guns, and artillery. Training also included laying land mines and setting "booby traps." "Non-divisional units" also trained at former Camp Maxey, including artillery, tanks, tank destroyers, cavalry, ordnance, quartermaster, signal corps, engineers, medical and military police. A non-divisional chemical warfare training school was established at former Camp Maxey as well. After October 1944, the facility was designated an Infantry Advanced Replacement Training Center for training of additional troop replacements for existing divisions. Before the end of the war, Camp Maxey also housed the largest prisoner of war camp in the United States. The camp was deactivated in 1945 and declared surplus in 1947. Land was conveyed to the state of Texas and sold to private owners. Later, some of the land was returned to the ownership of the federal government for construction of the Pat Mayse Dam on Sanders Creek. Currently, the installation is used by the State of Texas for a National Guard post, 7,468 acres are occupied by Pat Mayse Lake, over 20,000 acres surrounding the lake are occupied by a USACE-flood control and recreation area and a State of Texas Wildlife Management Area, and the remaining portion of the former camp lands are now privately owned and are used for residential, agricultural, and recreational activities.

Conceptual Site Model Information Profiles Site Profile	
Information Needs	**Preliminary Information**
Installation Area and Layout	The former Camp Maxey is a 41,128-acre property. Between 1942 and 1945, as many as 87 live fire ranges were in operation. The ranges arrayed in a circular pattern surrounding two major impact areas: East Impact Area and West Impact Area. A cantonment area was located on the southeast portion of the former camp. For the purpose of generating the 2004 Archives Search Report Supplement, the ranges were grouped into five range complexes. Range Complex 1, a mortar range complex, is located on the northeast corner of the installation and overlaps Range Complex 2. Range Complex 2, consisting of many small arms ranges, is located on the northeast corner of the installation, covering a large portion of the East Impact Area. Range Complex 3 is a small complex located to the southwest of the East Impact Area, and consisted of hand grenade ranges. Range Complex 4 is located over most of the West Impact Area and consisted of an artillery range, mortar ranges, and other training areas. Range Complex 5 is located in the northwest corner of the installation, overlapping Range Complex 4, and consisted of small arms ranges and practice hand grenade ranges. Following the surplus of Camp Maxey, Pat Mayse Lake was formed following the construction of a dam at Sanders Creek in 1967. The lake occupies 7,468 acres and covers a large portion of the northern end of the former installation. The lake is currently owned and managed by the U.S. Army Corps of Engineers (USACE) and is used for a variety of recreational purposes.
Installation and Range Structures	Installation structures within the cantonment area included single and married housing, installation administrative offices, and recreational facilities. The facility's ordnance area, where all munitions and weaponry used for training were stored, was located 3,000 feet south of the cantonment area. Range specific structures included firing lines, targets, and protective berms. The majority of the original installation and range structures are no longer present at the site. The Pat Mayse Dam was constructed in 1967, resulting in the creation of Pat Mayse Lake which covers the northern portion of the former camp. Six public parks managed by the USACE are present along the shoreline of Pat Mayse Lake. Portions of former Camp Maxey are now occupied by private farms, ranches, and rural residential properties. Some subdivision type housing exists on the southern and central portions of the former camp. A Texas National Guard installation currently occupies the eastern end of the former Camp Maxey. Former ranges located on the current Texas National Guard installation are not included in this FUDS assessment (see Range and Range Complex Descriptions section below).

Conceptual Site Model Information Profiles Site Profile	
Information Needs	**Preliminary Information**
Installation Boundaries	N: Farm Road 197 S: Undeveloped land and rural properties and Camp Maxey Texas Army National Guard training facility. W: Undeveloped land and rural properties and Farm Road 1499 E: U.S. Highway 271
Landowners	The current landowners include the federal government, the State of Texas, and private land owners. The State of Texas utilizes part of the former camp for a National Guard post, which is located in the east portion of the camp over part of the East Impact Area. The State of Texas also utilizes land for Pat Mayse State Park and Wildlife Management Area located in the northern and western portions of the park. Undeveloped acreage surrounding the lake is occupied by a USACE-flood control and recreation area. The remaining former camp lands, located mainly in the southern portion of the installation, are now privately owned and are used for residential, agricultural, and recreational activities.
Range/Site Security	Much of the former ranges and impact areas are not restricted from the general public. Much of the East Impact Area is covered by Pat Mayse Lake and the Texas national Guard facility, preventing access to some former range areas by the general public. The West Impact Area is covered by Pat Mayse Lake, park areas, and wildlife management areas, and is open to the general public. Approximately 15% of the former Camp Maxey land area is now privately owned. Pat Mayse State Park, Pat Mayse Lake, and the associated recreational areas are open to the public. Some all-terrain vehicle (ATV) trails, within undeveloped areas maintained by USACE, have been closed since 1997 due to the presence of MEC.

Conceptual Site Model Information Profiles Munitions/Release Profile	
Information Needs	**Preliminary Information**
Range and Range Complex Descriptions	Due to the large number of ranges located at the former installation, ranges have been grouped into complexes based on common types of munitions used (mortars, artillery, small arms ammunition) and geographic considerations (East vs. West impact areas, etc.). The range complexes presented here are the same as those generated in the 2004 Archives Search Report Supplement. **Range Complex 1**: Total of 2,536 acres (1,040.7 land acres;1,495.3 water acres) comprised of three mortar ranges; firing points were located on the northwest corner of the East Impact Area along the current location of the Pat Mayse Dam; range layouts included a firing point (firing line) generally oriented to fire southwest, the impact area located a minimum of 600 yards from the firing point, and a 600-yard safety danger zone (SDZ) applied to each side and to the downrange distance; a portion of this complex is now occupied by Pat Mayse Lake. **Range Complex 2**: 5,045 acres (4,186 land acres; 859 water acres) comprised of 32 small arms ranges arrayed around the East Impact Area; located in the northeast corner of the site including the northeastern portion of Pat Mayse Lake and Pat Mayse Dam; small arms ranges were oriented with firing points surrounding the East Impact Area with firing directions toward the center of the East Impact Area. The small arms utilized in Range Complex 2 included rifles, pistols, and sub-machine guns. Much of the area in Range Complex 2 south of the lake is now utilized in the Texas National Guard training facility, which is considered an active installation, and is not included as part of the Camp Maxey FUDS investigation. Range Complex 1 overlaps with the area of Range Complex 2 within the East Impact Area. **Range Complex 3**: 61 acres (54 land acres; 7 water acres) comprised of three hand grenade ranges; located on the southwest corner of the East Impact Area; an SDZ of about 600 feet would have been established around the entire range. The grenade ranges consisted of an individual throwing bay or a trench with targets and an impact area approximately 25 yards to the front of the throwing line. **Range Complex 4**: 3,718 acres (3,031 land acres; 687 water acres) comprised of five ranges/training areas located in the West Impact Area oriented to fire to the west-northwest (one artillery range, two mortar ranges, and two village training areas); located in the western portion of the site and includes the southern end of Pat Mayse Lake. The artillery range consists of an impact area and danger areas to the rear, sides and front. The mortar ranges consist of a firing point generally oriented to fire to the west and northwest, an impact area located a minimum of 600 yards from the firing point, and a 600-yard

Conceptual Site Model Information Profiles Munitions/Release Profile	
Information Needs	**Preliminary Information**
	SDZ applied to each side and to the downrange distance. The village training areas were mock villages designed for training for house-to-house fighting. These village training courses permitted a 180° field of fire and the ammunition was limited to M2, caliber .30, or others that do not require an SDZ that exceeds 4,000 yards. **Range Complex 5**: 4,382 acres (3,920 land acres; 462 water acres) comprised of 16 small arms and practice hand grenade ranges associated with the West Impact Area; located in the northwest corner of former Camp Maxey and includes the southern end of Pat Mayse Lake. The ranges in this complex were oriented with firing points surrounding the West Impact Area with firing directions toward the center of the West Impact Area. Range Complex 5 overlaps significantly with Range Complex 4 in the West Impact Area. **Ranges not included in Complexes:** Total of 493 acres (290 land acres; 203 water acres) comprised of three rifle grenade ranges, two grenade assault course ranges, one mines and booby traps range, one Pillbox training area, one cave training area, and one high explosives rocket launching range. These ranges are located on the west side of the East Impact Area, and to the southeast and east of the West Impact Area with firing directions generally toward the center of their respective Impact Areas. Note: A MEC survey and sampling effort conducted in 1998 and summarized in the Engineering Evaluation/Cost Analysis (EE/CA) conducted in 2000 divided the former Camp Maxey facility into 17 sectors for the evaluation of MEC presence. These included the following: • East Impact Area A, B, C, D, and E • West Impact Area A, B, C, and D • Grenade Area • Bivouac Area A, B, and C • North Training Area • South Training Area • Gas Chamber Area • Remaining Area These sectors overlap to varying degrees with the range complexes delineated in the 2004 ASR supplement. They are noted in this CSM for reference purposes.
Types of Munitions Used	**Range Complex 1**: mortars (4.2-inch, 81 millimeter (mm)) **Range Complex 2**: small arms (general small arms including .22

Conceptual Site Model Information Profiles Munitions/Release Profile	
Information Needs	**Preliminary Information**
	caliber, .30 caliber and less, and .45 caliber), practice hand grenades **Range Complex 3**: hand grenades and Mk II hand grenades **Range Complex 4**: small arms, practice hand grenades, large caliber (105 mm, high explosive (HE)), HE mortars (4.2-inch, 81 mm), pyrotechnics, flares, signals, simulators or screening smoke (other than white phosphorus) **Range Complex 5**: small arms (.50 caliber and machine gun) M21 practice hand grenades **Ranges not included in Complexes:** grenades (live rifle, anti-tank, live hand, Mk II, practice rifle, practice rocket, practice 2.36-inch), practice landmines (mine, anti-tank), flares, signals, simulators or screening smoke (other than white phosphorus), small arms, practice rifle ground rockets, live ground rockets (high explosive, anti-tank (HEAT), 2.36-inch)
Period of Use	1942 – 1945
Munitions Location	MEC remain on the surface and subsurface of the site. Previous site investigations and sampling indicated that the majority of ordnance items were located within the West and East Impact Areas; however, ordnance has been located in areas outside of the impact areas as well. MEC is expected to be located within Pat Mayse Lake as the lake covers large portions of both the West and East Impact Areas.
MEC Density	The West Impact Area and East Impact Area are expected to have high MEC density based on previous site investigations and sampling, and prior use of the areas. Based on previous site investigations and sampling, MEC is expected to be found in areas outside the West and East Impact Areas as well.
Munitions Debris	Munitions debris is expected to be present throughout the impact areas, both on the surface and in the subsurface, and within Pat Mayse Lake. Previous site investigations and sampling indicated that the majority of munitions debris items were located at a depth between 0 and 1 foot below ground surface (bgs). Previous site investigation and sampling also indicated that munitions debris can be expected to be found outside of the impact areas.
Associated Munitions Constituents (MC)	Based on training activities as the former Camp Maxey, associated MC include explosives and metals.
Migration Routes / Release Mechanisms	Migration of MEC on the surface may occur naturally through soil erosion or a storm event, or by human activities such as farming, ranching, construction, or maintenance at the site. Migration of MEC in the subsurface may occur naturally through surface soil erosion or by human activities such as intrusive activities such as farming or ranching techniques, construction, excavation, and/or maintenance at

Conceptual Site Model Information Profiles Munitions/Release Profile	
Information Needs	**Preliminary Information**
	the site. Migration of MEC within Pat Mayse Lake is possible due to a storm event, potential dredging, and recreational activities such as boating and diving. Migration of MC may occur naturally through surface soil erosion, plant or animal uptake, or by human activities such as maintenance and site work. If soil erosion and subsequent surface runoff carries MC into Pat Mayse Lake, migration of MC through surface water and sediment contact, or indirect or direct ingestion can occur as well. Migration of MC may occur through groundwater; however, it is not a concern as the shallow groundwater in the area is not a source of potable water.

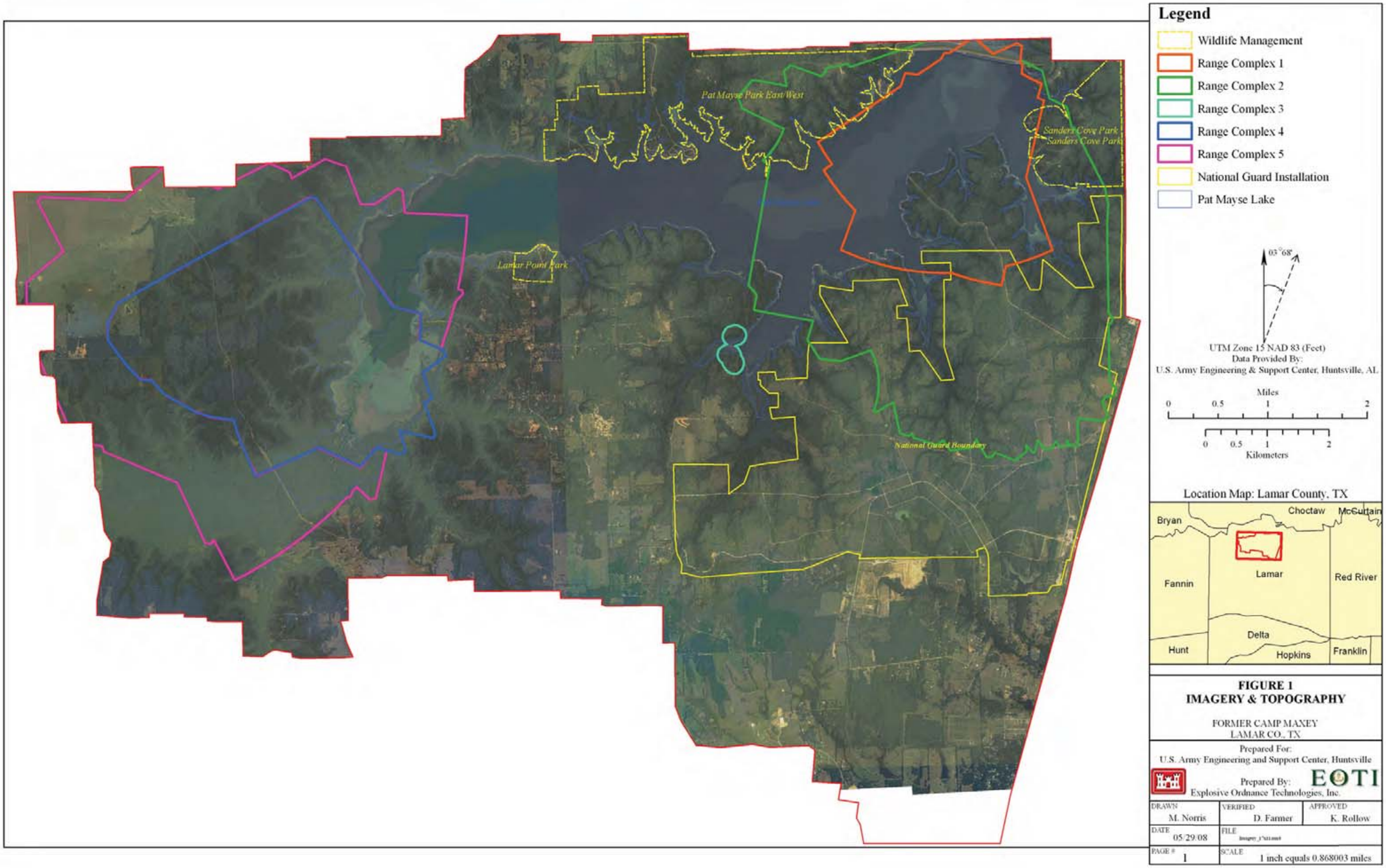
Conceptual Site Model Information Profiles Physical Profile	
Information Needs	**Preliminary Information**
Climate	The climate at the site can be characterized as humid and subtropical, predominantly continental in winter and marine in summer. Rainfall is distributed through the year, and the average annual rainfall is 47.7 inches. The average mean annual temperature in the region is 65 degrees Fahrenheit (°F); the average mean monthly temperature varies from 44°F in January to 85°F in July.
Topography	The former Camp Maxey lies within the Gulf Coastal Plain which is generally a gently undulating plain characterized by uplands of low relief and broad river valleys. Elevations generally range from 450 to 1,000 feet above mean sea level (amsl) in the area. The surface elevation of Pat Mayse Lake is approximately 451 ftamsl. The topography of the West Impact Area is gently sloping down to the east, toward Pat Mayse Lake, with elevations ranging from 450 to 540 ftamsl. The topography of the East Impact Area is gently sloping down to the north toward Pat Mayse Lake, with elevations ranging from 450 to 540 ftamsl.
Geology	The geology of the former Camp Maxey area is dominated by Cretaceous sediments. The majority of the sediments were deposited in a marine setting and the Pennsylvanian-Cretaceous unconformity indicating a long period of emergence and erosion. There are two stratigraphic units of the Gulf Series that outcrop in the former Camp Maxey area: the Eagle Ford Group and the Bonham Formation. The Eagle Ford Formation outcrops in the northern part of former Camp Maxey. It is approximately 350 feet thick and consists of shale which is interbedded by thin platy beds of sandstone and sandy limestone. The Bonham Formation outcrops in the southern part of former Camp Maxey. It ranges from 375 to 530 feet thick and consists of marl and clay.
Soil	The cantonment area, located on the southeast portion of the former camp, and the East Impact Area are contain various soil types; however, the Woodtell Loam and Freestone-Hicota Complex are the predominant soil types. The Woodtell Loam soil consists of loam, clay, and sandy clay loam and has slopes that range from 5 to 12 percent. The Freestone-Hicota Complex consists of fine to very fine sandy loam, clay, loam, and clay loam and has slopes that range from 0 to 3 percent. Various soil types are also present in the area north of Pat Mayse Lake; the dominant soil types include the Whakana-Porum Complex and Whakana fine sandy loam. The Whakana-Porum Complex and Whakana fine sandy loam both consist of fine sandy loam, clay loam, and sandy clay loam. The Whakana-Porum Complex has slopes that range from 8 to 20 percent and the Whakana fine sandy loam has slopes that range from 1

Conceptual Site Model Information Profiles Physical Profile	
Information Needs	**Preliminary Information**
Soil, continued	to 5 percent. The predominant soil types found within the West Impact Area and the central part of the site are include the Freestone-Hicota Complex and the Whakana-Porum Complex.
Hydrogeology	The Woodbine Group of Cretaceous age, provides water for all purposes in the Camp Maxey area. The Woodbine Group is divided into three water-bearing parts which vary in productivity and quality: the upper, middle, and lower. The lower Woodbine is the most productive and contains the best water quality. The Woodbine Group ranges in thickness from 230 feet to 700 feet. The depth to water is approximately 100 feet in the Woodbine Group in this area. The underlying Trinity Group of Cretaceous age is the largest and most prolific aquifer in the area; however, in the former Camp Maxey area, water within this aquifer is generally too saline for potable use. The Trinity Group is made up of the Antlers, Paluxy, and Twin Mountain Formations. It ranges in thickness from 100 feet to 1200 feet. The depth to water varies between 100 and 200 feet in the Trinity Group in Lamar County.
Hydrology	The majority of the former Camp Maxey lies within the Sanders Creek watershed and drainage basin. A dam built for flood-control and municipal and industrial water supply on Sanders Creek forms the Pat Mayse Lake, which is the primary surface water body on the site. Within the former Camp Maxey, many small surface drainages flow into Pat Mayse Lake including Little Creek, Spring Branch, Craddock Creek, Summer Branch, Sand Branch, Dead Man Branch, Presses Creek, and Stillhouse Creek. Surface water in the area generally drains to the northeast. Sanders Creek empties into the Red River two miles to the north.
Vegetation	The former Camp Maxey lies within the Post Oak Savannah vegetational area where the topography is characterized as gently sloping downward into broad drainage areas towards the lake. The area is primarily forestedwhich is also interspersed with prairies composed of Little Bluestem-Indiangrass. The upland areas at the site are dominated by oak species, while the understory species include flowering dogwood (*Cornus florida*), farkleberry (*Vaccinium arboretum*), and poison ivy (*Rhus toxicodendron*).

Conceptual Site Model Information Profiles Land Use and Exposure Profile	
Information Needs	**Preliminary Information**
Current Land Use	Current land use at the former Camp Maxey includes the Camp Maxey Texas Army National Guard training facility, Pat Mayse Lake, Pat Mayse State Park, undeveloped land open to the public for recreation activities including hunting, camping, and hiking, the Pat Mayse Wildlife Management Area, and privately owned land used for rural residential, farming, and ranching purposes.
Current Human Receptors	Human receptors that may access the site include military personnel at the Texas National Guard installation, visitors to the Pat Mayse Wildlife Management Area, recreational users of the lake, state park, or undeveloped areas, and residents on privately owned land.
Current Activities (frequency, nature of activity)	Current activities include recreational activities such as boating, diving, fishing, and swimming at Pat Mayse Lake, recreational activities such as hunting, camping, hiking, and ATV riding in the undeveloped areas or in the state park, any maintenance activities in the state park or wildlife management area, and farming and ranching activities in the privately owned land. Training activities are currently conducted at the Texas National Guard facility; however, this is considered an active installation and these areas are not included as part of the Camp Maxey FUDS investigation.
Potential Future Land Use	No change in land use is planned for the federal- and state-owned lands. Private landowners potentially may develop portions of their properties for various purposes (e.g., farming/ranching, new home construction, etc.), to include intrusive construction work.
Potential Future Human Receptors	Same as current receptors.
Potential Future Land Use Related Activities	Same as current activities
Zoning / Land Use Restrictions	Some ATV trails in the undeveloped areas maintained by USACE have been closed. The Pat Mayse Wildlife Management Area is within the former installation. USACE maintains acreage surrounding Pat Mayse Lake for flood control. Some institutional controls in the form of signage have been placed within the former Camp Maxey property.
Beneficial Resources	The Texas Historical Commission identified the project area as having the "potential for containing archeological sites which may be eligible for inclusion in the National Register of Historic Places or for designation as State Archeological Landmarks". The Pat Mayse Wildlife Management Area provides a large volume of habitat for a variety of local flora and fauna (see Ecological Profile). Large sections of wetlands also exist within the former Camp Maxey.

Conceptual Site Model Information Profiles Land Use and Exposure Profile	
Information Needs	**Preliminary Information**
Demographics/ Zoning	Demographics for Lamar County: - Population (2000): 48,499 - Population density (2000): 53 residents / square mile Demographics for Paris, Texas - Population (2000): 25,898

Conceptual Site Model Information Profiles Ecological Profile	
Information Needs	**Preliminary Information**
Fauna	Fauna existing within former Camp Maxey includes mammals, birds, reptiles, amphibians, and aquatic organisms. The former camp provides a suitable habitat for these various forms of wildlife due to its undisturbed nature. The Interior Least Tern is listed as endangered on both the state and federal lists. The American Peregrine Falcon is listed as endangered on the state list. The Bald Eagle is listed as threatened on both the state and federal lists. The Arctic Peregrine Falcon is listed as threatened on the state list. These four birds species have been identified in Lamar County. Previous surveys identified the Bald Eagle and Arctic Peregrine Falcon near Pat Mayse Lake. These birds species may visit the site in the winter as flyovers or migrants. Pat Mayse Lake is considered to be a suitable habitat for the Interior Least Tern as well. No other state-listed endangered or threatened species for Lamar County have been identified at the former camp.
Habitat Type	The undisturbed nature of this site has allowed much of the native habitat acreage to remain. The site includes forested upland, wetlands, and aquatic habitats.
Degree of Disturbance	Current and anticipated future activities at the site, such as recreational activities, provide a moderate degree of disturbance of habitat and/or fauna within the former camp.


Legend
Wildlife Management
Range Complex 1
Range Complex 2
Range Complex 3
Range Complex 4
Range Complex 5
National Guard Installation
Pat Mayse Lake
Pat Mayse Park East/West
Sanders Cove Park
Sanders Cove Park
Lamar Point Park
National Guard Boundary
03°68'
UTM Zone 15 NAD 83 (Feet)
Data Provided By:
U.S. Army Engineering & Support Center, Huntsville, AL
Miles
0 0.5 1 2
0 0.5 1 2
Kilometers
Location Map: Lamar County, TX
Bryan
Choctaw
McCurtain
Fannin
Lamar
Red River
Delta
Hunt
Hopkins
Franklin
FIGURE 1
IMAGERY & TOPOGRAPHY
FORMER CAMP MAXEY
LAMAR CO., TX
Prepared For:
U.S. Army Engineering and Support Center, Huntsville
Prepared By:
Explosive Ordnance Technologies, Inc.
EOTI
DRAWN
M. Norris
VERIFIED
D. Farmer
APPROVED
K. Rollow
DATE
05/29/08
FILE
PAGE #
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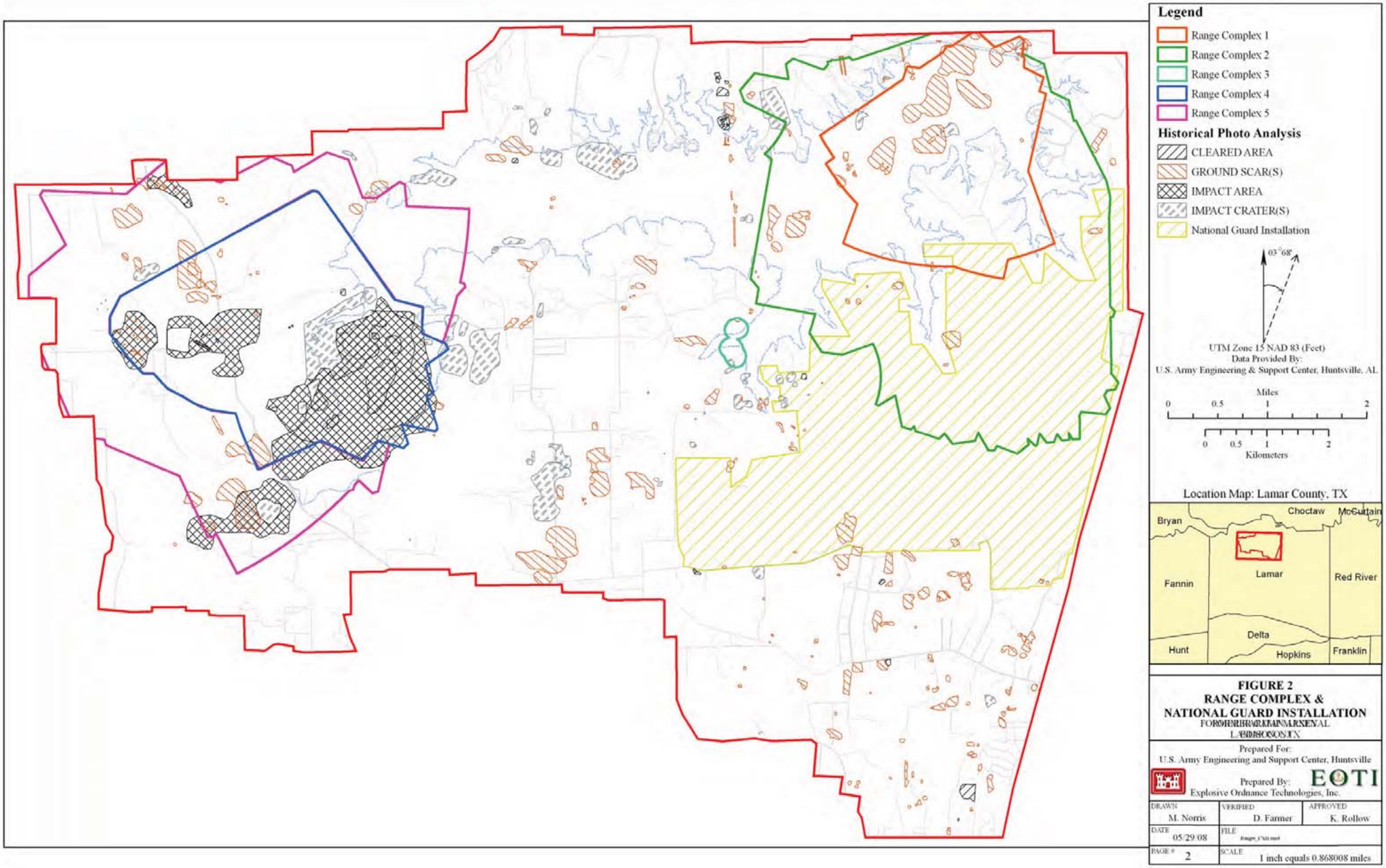
SCALE
1 inch equals 0.868003 miles


Legend
Range Complex 1
Range Complex 2
Range Complex 3
Range Complex 4
Range Complex 5
Historical Photo Analysis
CLEARED AREA
GROUND SCAR(S)
IMPACT AREA
IMPACT CRATER(S)
National Guard Installation
03°68'
UTM Zone 15 NAD 83 (Feet)
Data Provided By:
U.S. Army Engineering & Support Center, Huntsville, AL
Miles
0 0.5 1 2
0 0.5 1 2
Kilometers
Location Map: Lamar County, TX
Bryan
Choctaw
McCurtain
Fannin
Lamar
Red River
Delta
Hunt
Hopkins
Franklin
FIGURE 2
RANGE COMPLEX &
NATIONAL GUARD INSTALLATION
Prepared For:
U.S. Army Engineering and Support Center, Huntsville
Prepared By:
Explosive Ordnance Technologies, Inc.
EOTI
DRAWN
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D. Farmer
APPROVED
K. Rollow
DATE
05/29/08
FILE
PAGE #
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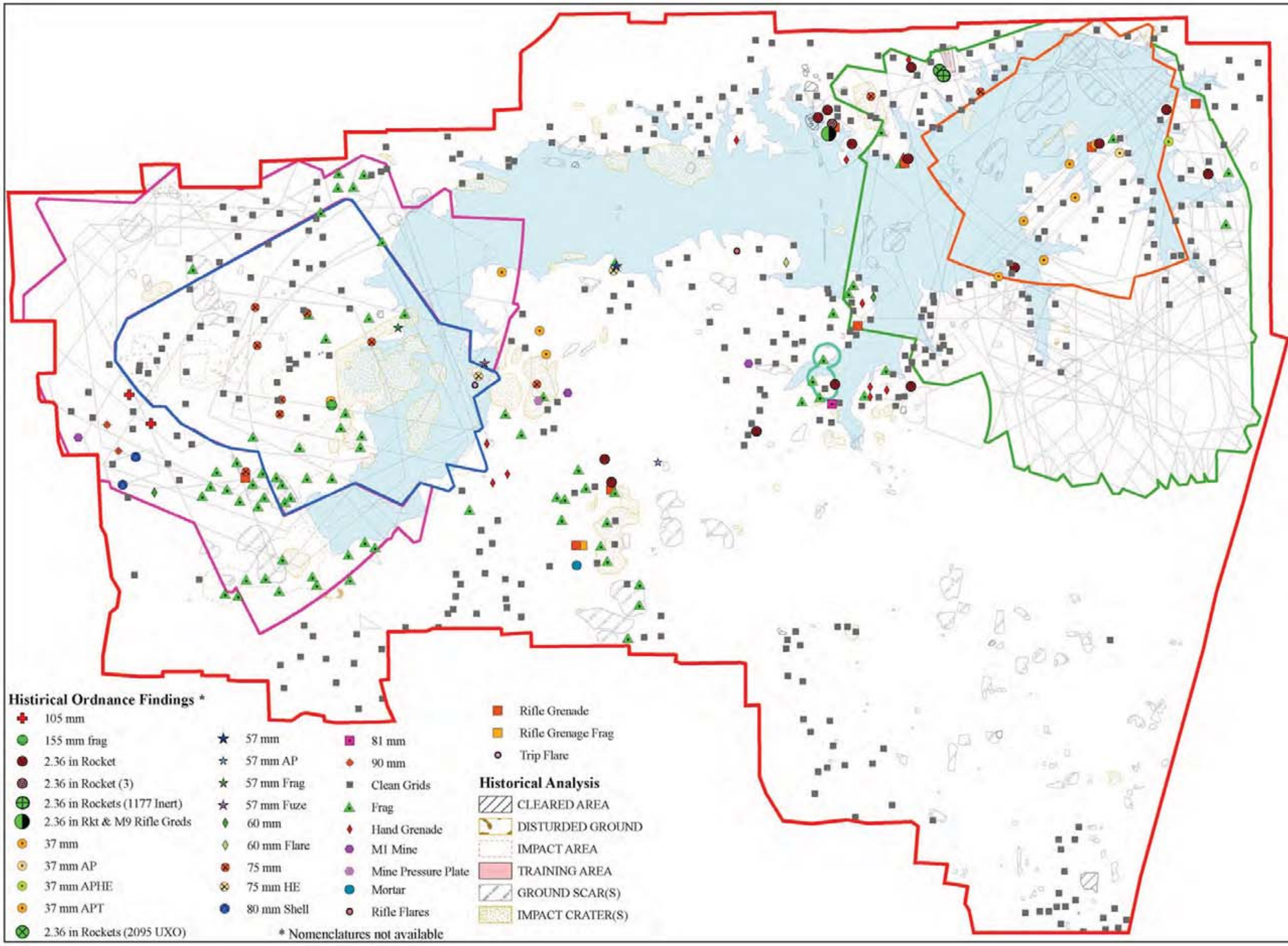

FIGURE 3
HISTORICAL ORDNANCE &
HISTORICAL PHOTO ANALYSIS
FORMER CAMP MAXEY
LAMAR CO., TX

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Explosive Ordnance Technologies, Inc.
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M. Norris	D. Farmer	K. Rollow
DATE 05/29/08	FILE UXO Locations_1762.mxd	
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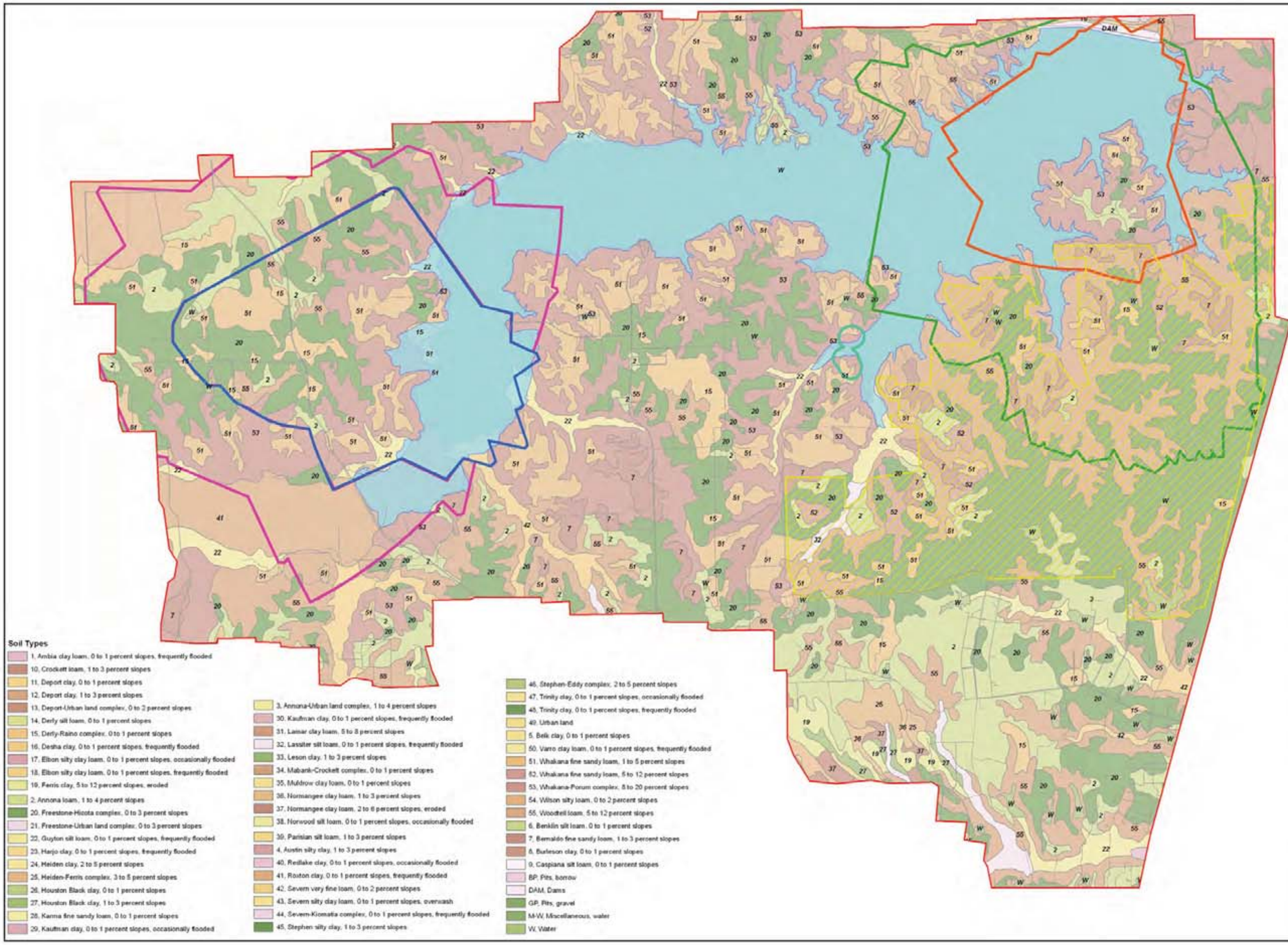

Legend

- Transportation Routes
- National Guard Installation
- Range Complex 1
- Range Complex 2
- Range Complex 3
- Range Complex 4
- Range Complex 5
- Pat Mayse Lake

03°68'

UTM Zone 15 NAD 83 (Feet)
Data Provided By:
U.S. Army Engineering & Support Center, Huntsville, AL

Miles: 0, 0.5, 1, 2

Kilometers: 0, 0.5, 1, 2

Location Map: Lamar County, TX

FIGURE 4
SOILS & RANGE COMPLEX

FORMER CAMP MAXEY
LAMAR CO., TX

Prepared For:
U.S. Army Engineering and Support Center, Huntsville

Prepared By:
Explosive Ordnance Technologies, Inc.

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DATE 05/29/08	FILE SOILS_1"x11.mxd	
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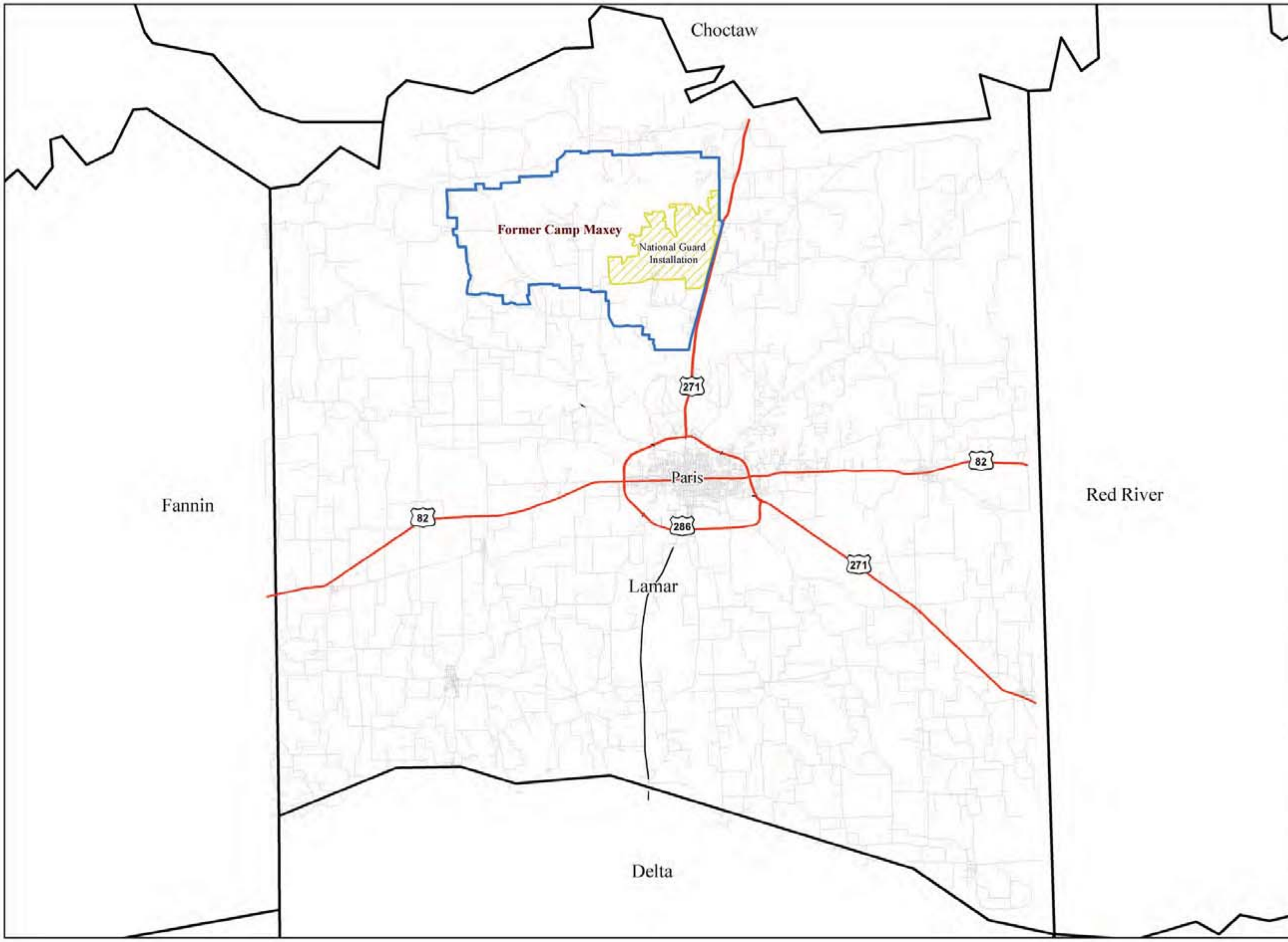
APPENDIX B
SITE MAPS

TPP MEMORANDUM
REMEDIAL INVESTIGATION / FEASIBILITY STUDY
FORMER CAMP MAXEY
TEXAS



Legend

- Installation
- U.S. Highway
- County Road
- National Guard Installation

03°68'

UTM Zone 15 NAD 83 (Feet)
Data Provided By:
U.S. Army Engineering & Support Center, Huntsville, AL

Miles
4 2 0 4

0 3 6 12
Kilometers

Location Map:
Former Camp Maxey Lamar County, TX

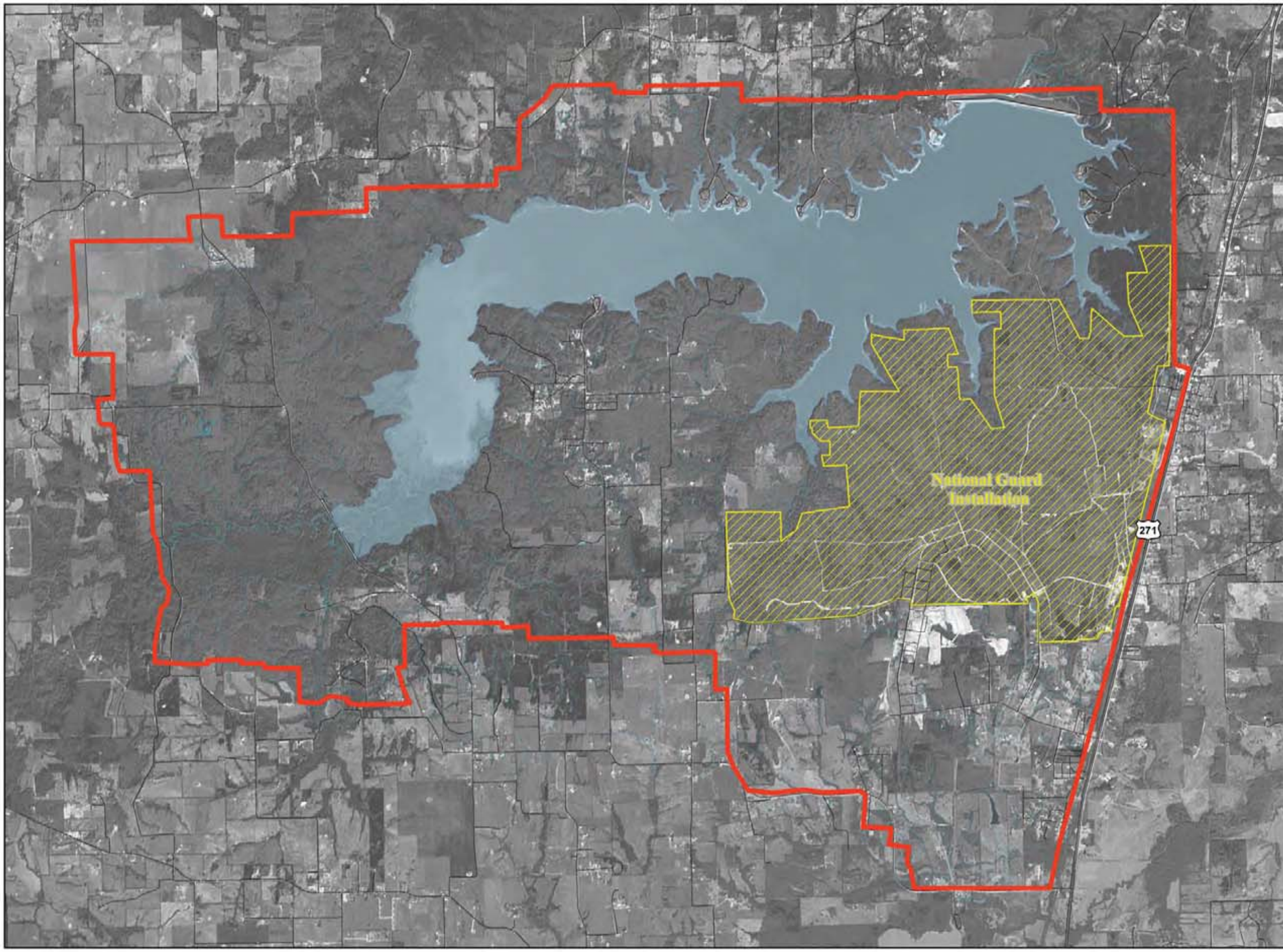
FIGURE B-1
Site Location Map

FORMER CAMP MAXEY
LAMAR CO., TX

Prepared For:
U.S. Army Engineering and Support Center, Huntsville

Prepared By:
Explosive Ordnance Technologies, Inc.
EOTI

DRAWN	VERIFIED	APPROVED
M. Norris	D. Farmer	K. Rollow
DATE 11/13/08	FILE WP Stand	
PAGE # B-1	SCALE 1 inch equals 4 miles	



Legend

- Installation
- Roads
- Streams
- Lake
- National Guard Installation

03°68'

UTM Zone 15 NAD 83 (Feet)
Data Provided By:
U.S. Army Engineering & Support Center, Huntsville, AL

Miles
1 0.5 0 1

1 0.5 0 1
Kilometers

Location Map:
Former Camp Maxey Lamar County, TX

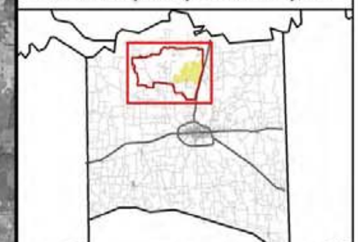


FIGURE B-2
Historical Installation Map

FORMER CAMP MAXEY
LAMAR CO., TX

Prepared For:
U.S. Army Engineering and Support Center, Huntsville

Prepared By:
Explosive Ordnance Technologies, Inc.

DRAWN M. Norris	VERIFIED D. Farmer	APPROVED K. Rollow
DATE 11/13/08	FILE WP B2.mxd	
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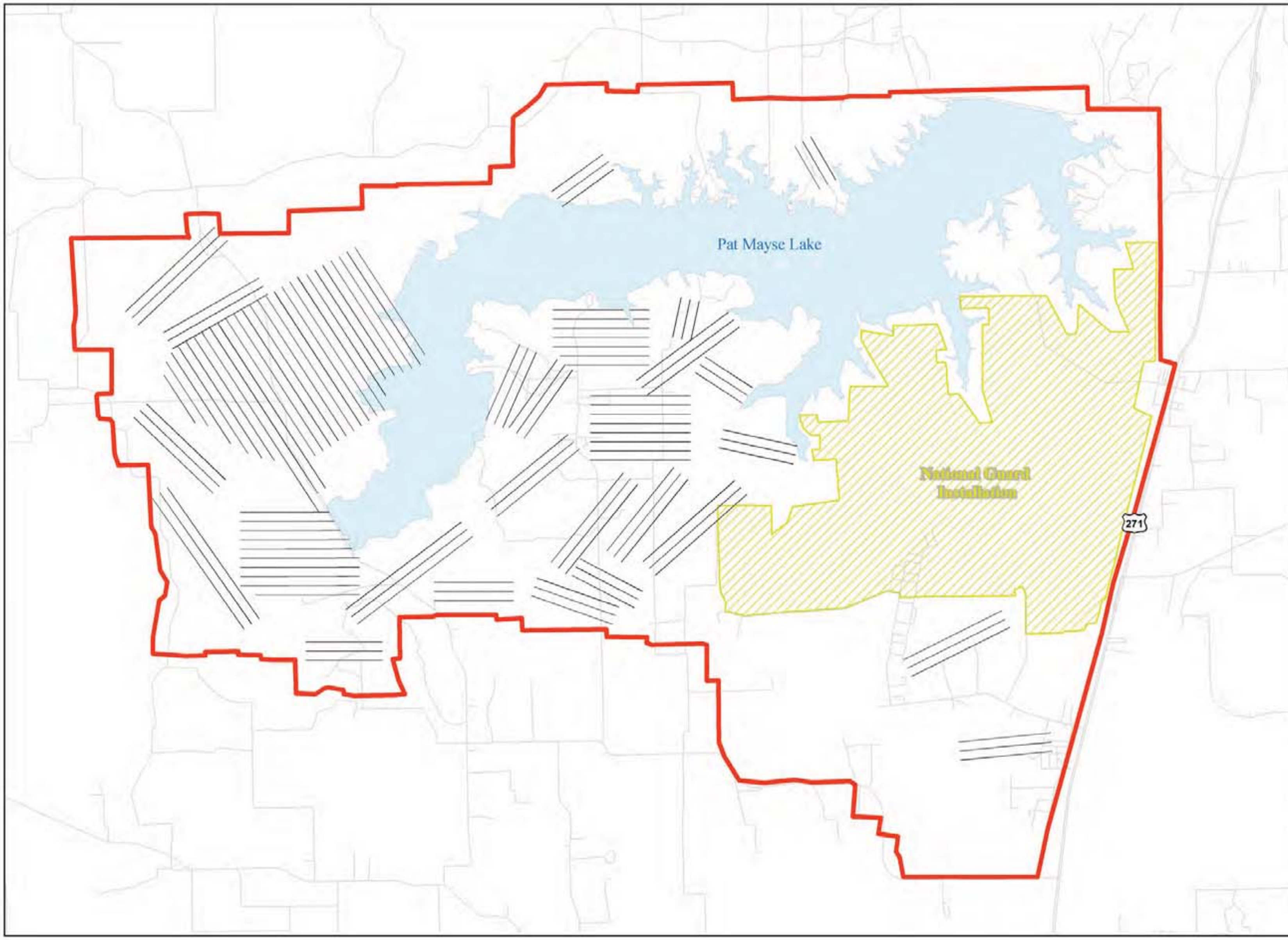

Legend

- Installation
- Investigation Transects 3ft width, 500 ft Seperation
- Lake
- Roads
- National Guard Installation

03°68'

UTM Zone 15 NAD 83 (Feet)
Data Provided By:
U.S. Army Engineering & Support Center, Huntsville, AL

Miles: 1 0.5 0 1
Kilometers: 1 0.5 0 1

Location Map:
Former Camp Maxey Lamar County, TX

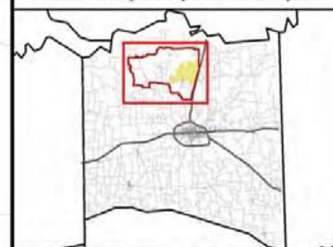

FIGURE B-3
Investigation Transect Map

FORMER CAMP MAXEY
LAMAR CO., TX

Prepared For:
U.S. Army Engineering and Support Center, Huntsville

Prepared By:
Explosive Ordnance Technologies, Inc.

EOTI

DRAWN	VERIFIED	APPROVED
M. Norris	D. Farmer	K. Rollow
DATE 11/17/08	FILE	
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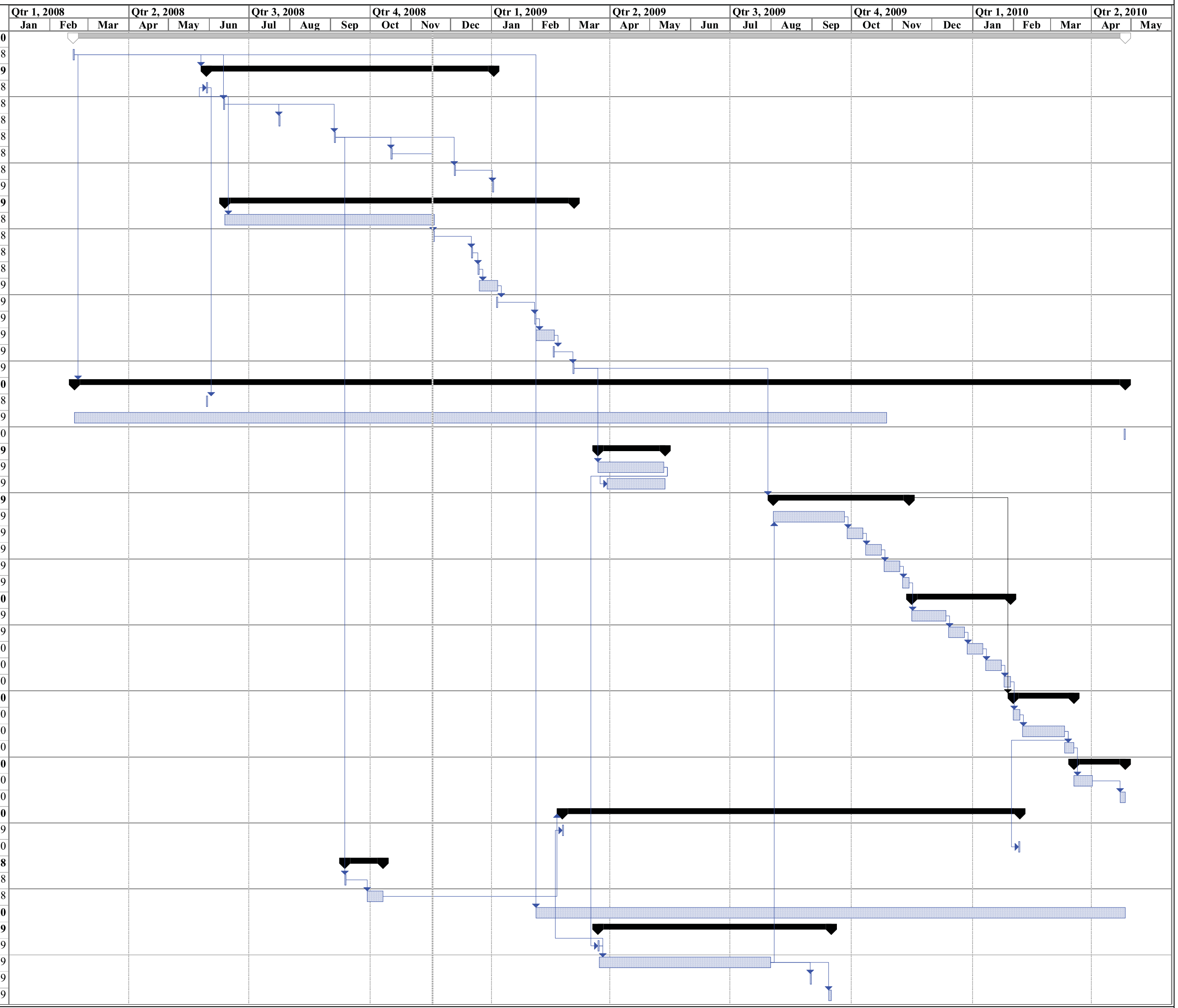
APPENDIX C
PROJECT SCHEDULE

TPP MEMORANDUM
REMEDIAL INVESTIGATION / FEASIBILITY STUDY
FORMER CAMP MAXEY
TEXAS

RI / FS
Former Camp Maxey
Paris, TX

ID	Task Name	Duration	Start	Finish
1	**RI/FS Former Former Camp Maxey**	**571 days**	**Tue 2/19/08**	**Mon 4/26/10**
2	Award	1 day	Tue 2/19/08	Tue 2/19/08
3	**Task 1. Technical Project Planning**	**157 days**	**Fri 5/30/08**	**Fri 1/2/09**
4	Submit CSM/GIS	1 day	Fri 5/30/08	Fri 5/30/08
5	TPP Meeting 1	1 day	Thu 6/12/08	Thu 6/12/08
6	Submit Draft TPP Memorandum	1 day	Thu 7/24/08	Thu 7/24/08
7	TPP Meeting 2	1 day	Thu 9/4/08	Thu 9/4/08
8	DQOs Determined	1 day	Fri 10/17/08	Fri 10/17/08
9	TPP Meeting 3	1 day	Thu 12/4/08	Thu 12/4/08
10	Submit Final TPP Memorandum	1 day	Fri 1/2/09	Fri 1/2/09
11	**Task 2. RI/FS Work Plan**	**190 days**	**Fri 6/13/08**	**Wed 3/4/09**
12	Prepare Draft Work Plan	114 days	Fri 6/13/08	Tue 11/18/08
13	Submit Draft Work Plan / SAP	1 day	Tue 11/18/08	Tue 11/18/08
14	Receive Draft Work Plan Comments	1 day	Wed 12/17/08	Wed 12/17/08
15	Attend Onboard Review	1 day	Mon 12/22/08	Mon 12/22/08
16	Prepare Draft Final Work Plan	10 days	Tue 12/23/08	Mon 1/5/09
17	Submit Draft Final Work Plan	1 day	Mon 1/5/09	Mon 1/5/09
18	Receive Draft Final Work Plan Comments	1 day	Tue 2/3/09	Tue 2/3/09
19	Prepare Final Work Plan	10 days	Wed 2/4/09	Tue 2/17/09
20	Submit Final Work Plan	1 day	Tue 2/17/09	Tue 2/17/09
21	Notice to Proceed	1 day	Wed 3/4/09	Wed 3/4/09
22	**Task 3. GIS**	**570 days**	**Wed 2/20/08**	**Mon 4/26/10**
23	Submit CSM/GIS (see Task 4)	1 day	Fri 5/30/08	Fri 5/30/08
24	GIS Data	441 days	Wed 2/20/08	Tue 10/27/09
25	Submit Final GIS Files	1 day	Mon 4/26/10	Mon 4/26/10
26	**Task 4 RI/FS Field Activities**	**37 days**	**Mon 3/23/09**	**Tue 5/12/09**
27	Transects	36 days	Mon 3/23/09	Mon 5/11/09
28	Anomaly Investigation	32 days	Mon 3/30/09	Tue 5/12/09
29	**Task 5. RI Report**	**75 days**	**Mon 8/3/09**	**Fri 11/13/09**
30	Draft RI	40 days	Mon 8/3/09	Fri 9/25/09
31	COE Review / Onboard Review	10 days	Mon 9/28/09	Fri 10/9/09
32	Draft Final	10 days	Mon 10/12/09	Fri 10/23/09
33	Stakeholder Review	10 days	Mon 10/26/09	Fri 11/6/09
34	Final	5 days	Mon 11/9/09	Fri 11/13/09
35	**Task 6. FS Report**	**55 days**	**Mon 11/16/09**	**Fri 1/29/10**
36	Draft FS	20 days	Mon 11/16/09	Fri 12/11/09
37	COE Review / Onboard Review	10 days	Mon 12/14/09	Fri 12/25/09
38	Draft Final	10 days	Mon 12/28/09	Fri 1/8/10
39	Stakeholder Review	10 days	Mon 1/11/10	Fri 1/22/10
40	Final	5 days	Mon 1/25/10	Fri 1/29/10
41	**Task 7. Proposed Plan**	**34 days**	**Mon 2/1/10**	**Thu 3/18/10**
42	Draft Proposed Plan	5 days	Mon 2/1/10	Fri 2/5/10
43	Public Review	24 days	Mon 2/8/10	Thu 3/11/10
44	Final Proposed Plan / Responsive Summary	5 days	Fri 3/12/10	Thu 3/18/10
45	**Task 8. Decision Document**	**27 days**	**Fri 3/19/10**	**Mon 4/26/10**
46	Draft DD	10 days	Fri 3/19/10	Thu 4/1/10
47	Final DD	2 days	Fri 4/23/10	Mon 4/26/10
48	**Task 9. Community Relations Support**	**249 days**	**Tue 2/24/09**	**Fri 2/5/10**
49	Public Meeting 1	1 day	Tue 2/24/09	Tue 2/24/09
50	Public Meeting 2	1 day	Fri 2/5/10	Fri 2/5/10
51	**Task 10. Public Involvement Plan**	**21 days**	**Fri 9/12/08**	**Fri 10/10/08**
52	Draft PIP	1 day	Fri 9/12/08	Fri 9/12/08
53	Final PIP	10 days	Mon 9/29/08	Fri 10/10/08
54	**Task 11. Administrative Record**	**319 days**	**Wed 2/4/09**	**Mon 4/26/10**
55	**Task 12 Sampling & Analysis**	**127 days**	**Mon 3/23/09**	**Tue 9/15/09**
56	Mobilization	1 day	Mon 3/23/09	Mon 3/23/09
57	Environmental Sampling	94 days	Tue 3/24/09	Fri 7/31/09
58	Analytical Data Submittal for QA Evaluation	1 day	Mon 8/31/09	Mon 8/31/09
59	Electronic Laboratory Data Submittal	2 days	Mon 9/14/09	Tue 9/15/09



Task | Split | Progress | Milestone | Summary | Project Summary | External Tasks | External Milestone | Deadline

APPENDIX D
TPP MEETING 1

TPP MEMORANDUM
REMEDIAL INVESTIGATION / FEASIBILITY STUDY
FORMER CAMP MAXEY
TEXAS

Remedial Investigation / Feasibility Study
Former Camp Maxey, Texas

Technical Project Planning Meeting
12 June 2008

EOTI 6/12/08

FUDS Program

- Formerly Used Defense Sites (FUDS)
  FUDS are properties that were formerly owned, leased, possessed by, or otherwise under the operational control of the DoD or military prior to 1986.

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Munitions and Explosives of Concern (MEC)

The focus is to minimize the safety hazards from MEC remaining at this FUDS site.

MEC and UXO:

- MEC consists of munitions and explosives, including fired and/or discarded items, explosive filler, etc.
- UXO is defined as *unexploded ordnance*
- UXO is *a subset of MEC*

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Stakeholder Involvement

- Stakeholders provide input throughout the project
  - Voice community concerns
  - Participate in Technical Project Planning process
  - Review and give input on draft decision documents

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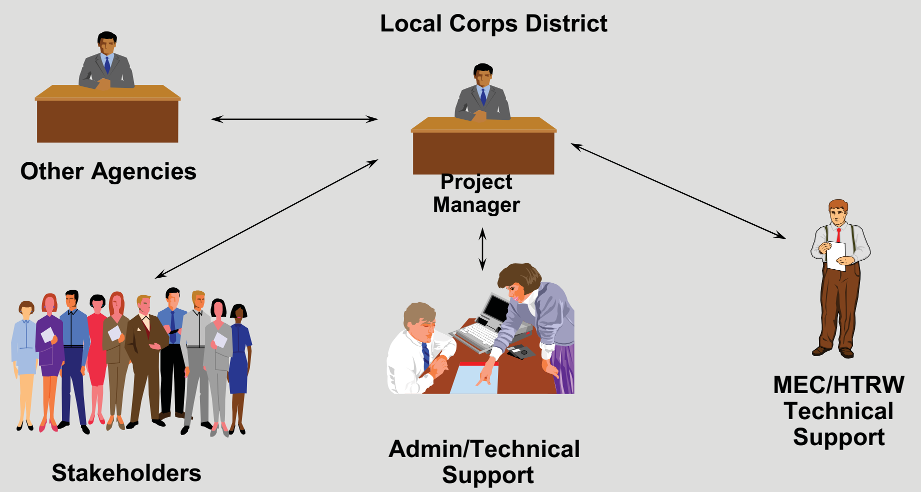
Project Team Composition



Investigation

Remedial Investigation/Feasibility Study (RI/FS) Process

- Remedial Investigation
  - Conduct Field Investigation
  - Perform Data Analysis
  - Characterize Site
  - Conduct Human Health and Ecological Risk Assessment
    - Human Health
    - Ecological
  - Prepare RI Report
  - Transition to Feasibility Study

Investigation

Remedial Investigation/Feasibility Study (RI/FS) Process

- Feasibility Study
  - Establish Remedial Action Objectives
  - Develop General Response Actions (NDAI, IC's, Surface Removal, etc.)
  - Identify and Screen Technologies and Options (review of specific alternatives within each technology family)
  - Individual Analysis of Alternatives Against 9 Evaluation Criteria
  - Identify ARARs
  - Comparative Analysis of Alternatives
  - Feasibility Study Report

Response Action

- Implementation of selected responses
  - Further investigation
  - Institutional controls
  - Surface removals
  - Subsurface removals
  - No further action
- Recurring reviews
- DoD maintains continuing responsibility

Data Quality Objective Development Process

1. *State the Problem*
2. Identify the Decision
3. Identify Inputs to the Decision
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7. Optimize the Design for Obtaining Data

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Site Chronology

- From 1942 to 1945, Camp Maxey was a United States Army post utilized for training infantry in World War II (WWII). Following the conclusion of the war, the facility was inactivated in October 1945, and was declared surplus in 1947.
- Land was conveyed to the state of Texas and sold to private owners. Later, some of the land was returned to the ownership of the federal government for construction of the Pat Mayse Dam on Sanders Creek.
- Currently, the installation is used by the State of Texas for a National Guard post, 7,468 acres are occupied by Pat Mayse Lake, over 20,000 acres surrounding the lake are occupied by a USACE-flood control and recreation area and a State of Texas Wildlife Management Area, and the remaining portion of the former camp lands are now privately owned and are used for residential, agricultural, and recreational activities.

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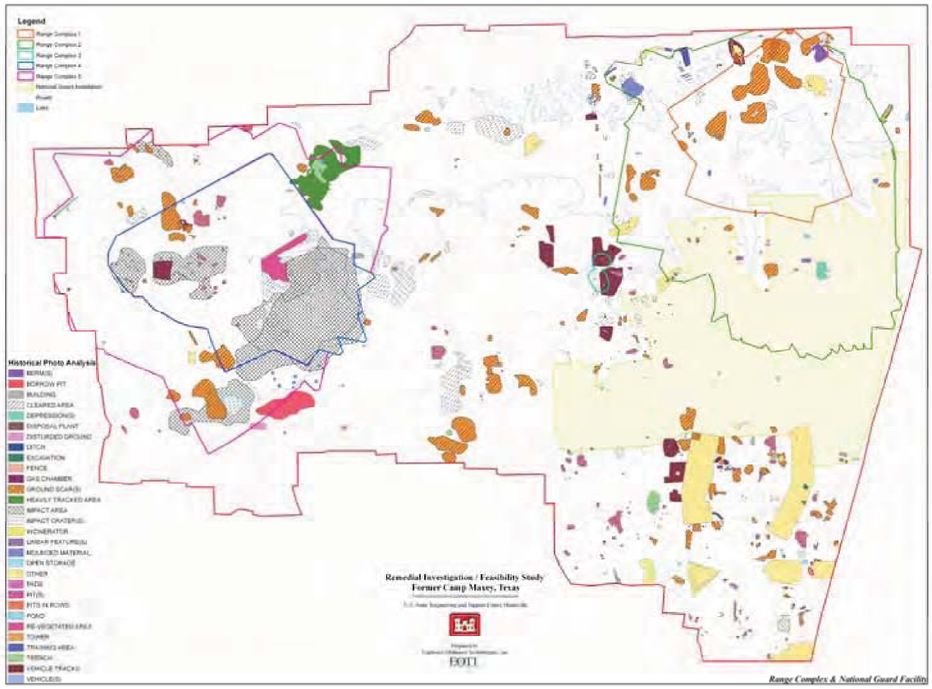
Anticipated Ordnance

- 37 mm Projectile
- 57 mm Projectile
- 60 mm Mortar Projectile
- 75 mm Projectile
- 81 mm Mortar Projectile
- 2.36” Rocket
- 90 mm Projectile
- 105 mm Projectile
- 155 mm Frag



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Project Objective/Decisions

Objective:

Obtain government acceptance of a Decision Document.

Decisions:

- Further investigation
- Institutional controls
- Surface removals
- Subsurface removals
- No further action

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Performance Work Statement

Task Number and Description

1 – Technical Project Planning (TPP)
2 – Work Plan
3 - Geographical Information System (GIS)
5 – Remedial Investigation (RI) Report
6 – Feasibility Study (FS) Report
7 – Proposed Plan
8 – Decision Document
9 – Community Relations Support
10 – Public Involvement Plan
11 – Administrative Record
12 – Environmental Sampling and Chemical Analysis

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Project Schedule Highlights

2008

• TPP Meeting 2	September 4
• TPP Meeting 3	November 21
• Public Meeting 1	November 21

2009

• Work Plan Finalized	February
• Environmental Sampling	March
• RI Report Finalized	August
• FS Report Finalized	October
• Public Meeting 2	November
• Proposed Plan Review	November
• Decision Document	December

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Data Quality Objective Development Process

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Previous Investigations

- 2008 — Non Time-Critical Removal Action
- 2005-2006 — Non Time-Critical Removal Action
- 2002 — Geophysical Prove-Out
- 2000 — Non Time-Critical Removal Action
- 2000 — Engineering Evaluation / Cost Analysis
- 1997 — Surface and Subsurface Ordnance and Explosive (OE) Survey and Sampling
- 1997 — Time-Critical Removal Action
- 1994 — Archive Search Report
- 1990s — Military Explosive Ordnance Demolition (EOD) Team Dispatched
- 1980s — Military EOD Team Dispatched
- 1965 — Military EOD Team Dispatched

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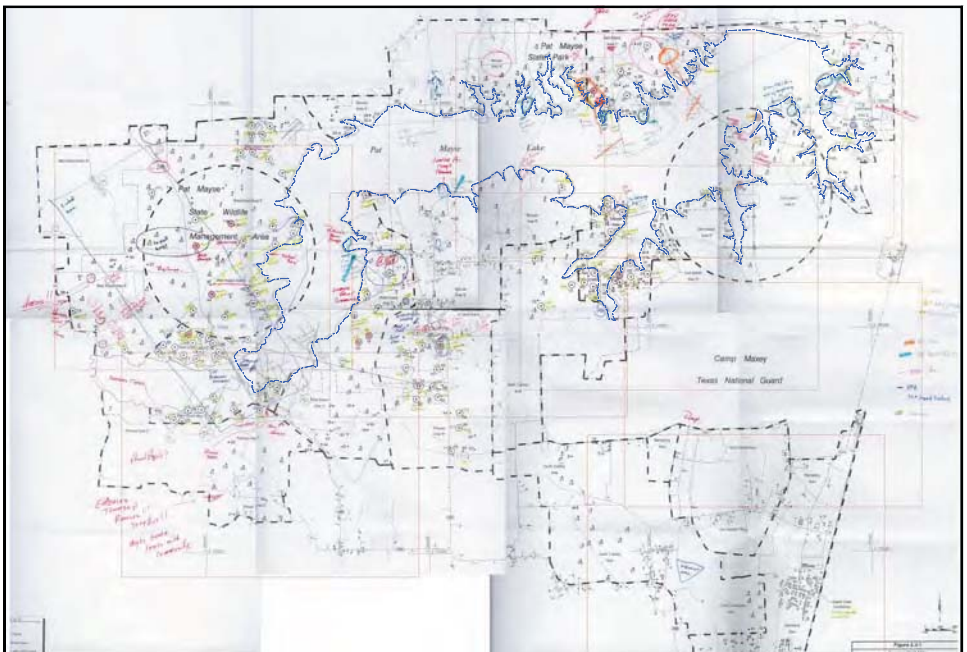

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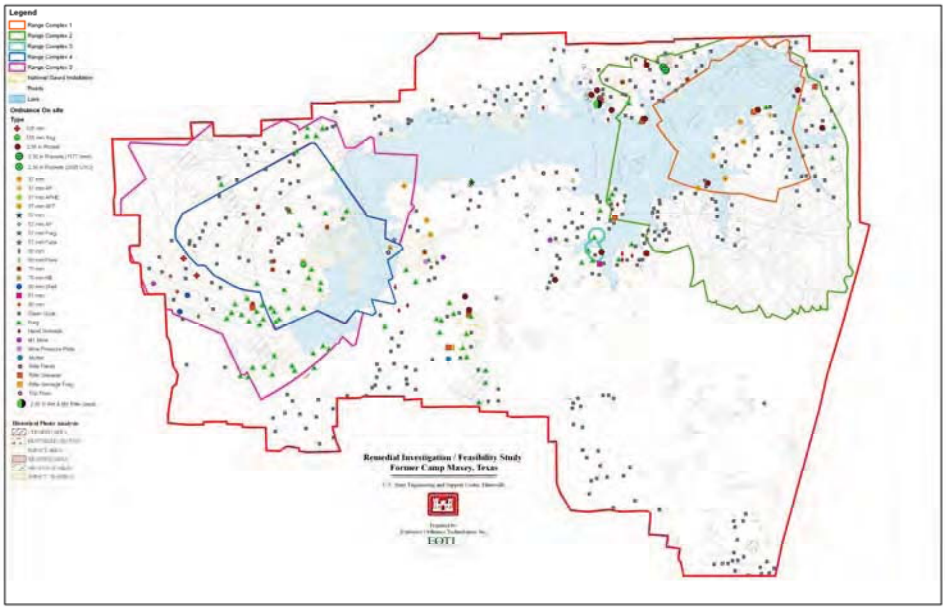

Possible Data Gaps - Geophysical

- 115 acres surveyed in 1999
- Typical Geophysical Surveying Requirements (EM 1110-1-4009)

Sector Size, Acres	Basic Minimum Area Investigated	Recommended Minimum Area Investigated
< 50	5.0%	7.5%
51 –100	3.0%	4.5%
101 – 150	2.0%	3.0 %
151 – 1000	1.0%	1.5%
> 1000	0.5%	0.75%

ACRES		0.5%	.75%
41,128 (total area)	=	206	309 acres
34,958 (w/o TNG)	=	175	263 acres
26,422 (Including excluded Sectors - 2000 EE/CA)	=	132	199 acres
23,384 (Sectors included 2000 EE/CA)	=	117	176 acres

Possible Data Gaps Geophysical (con't)

Sector Number	Sector Description	Approx. Area (Acres)	Number of Grids	Number of UXO Items Found	ACRES		
					Percent Completed	Data Gap 0.05%	Data Gap 0.075%
1	East Impact Area A	N/A	None	N/A	N/A	N/A	N/A
2	East Impact Area B	1,750	38	2	8.72	0.03	4.40
3	East Impact Area C	853	40	4	9.18	-4.92	-2.79
4	East Impact Area D	324	30	1	6.89	-5.27	-4.46
5	East Impact Area E	944	38	1	8.72	-4.00	-1.64
6	West Impact Area A	3,169	47	0	10.79	5.06	12.98
7	West Impact Area B	2,090	45	3	10.33	0.12	5.34
8	West Impact Area C	1,783	41	4	9.41	-0.50	3.96
9	West Impact Area D	582	30	3	6.89	-3.98	-2.52
10	Grenade Area	252	25	0	5.74	-4.48	-3.85
11	Bivouac Area A	1,851	39	0	8.95	0.30	4.93
12	Bivouac Area B	3,627	48	1	11.02	7.12	16.18
13	Bivouac Area C	1,766	19	0	4.36	4.47	8.88
14	North Training Area	1,751	17	0	3.90	4.85	9.23
15	South Training Area	2,642	31	0	7.12	6.09	12.70
16	Gas Chamber	1,307	1	0	0.23	6.31	9.57
TOTAL		**26,422**	**501**	**19**	**115.01**	**17.10**	**83.15**

Possible Data Gaps – Munitions Constituents

- No Munitions Constituents Data can be identified for the site.

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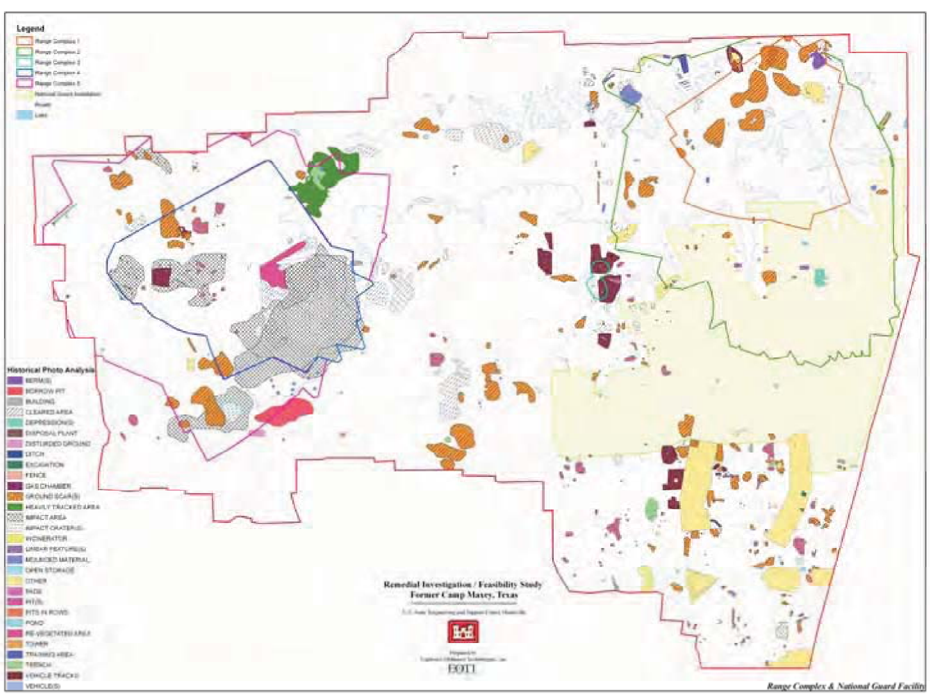

When to Collect Data

2008

• TPP Meeting 2	September 4
• TPP Meeting 3	November 21
• Public Meeting 1	November 21

2009

• Work Plan Finalized	February
• *Field Activities (Characterize Site)*	*March*
• Environmental Sampling	March
• RI Report Finalized	August
• FS Report Finalized	October
• Public Meeting 2	November
• Proposed Plan Review	November
• Decision Document	December

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Constraints on Data Collection

- Hunting Activities
- Fishing Tournament
- Rights of Entry
- Funding

Comments?

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Geophysical

ACRES		0.5%	.75%
41,128 (total area)	=	206	309 acres
34,958 (w/o TNG)	=	175	263 acres
26,422 (Including excluded Sectors - 2000 EE/CA)	=	132	199 acres
23,384 (Sectors included 2000 EE/CA)	=	117	176 acres

2000 EE/CA

	Approx. Area (Acres)	Number of Grids	Number of UXO Items Found	ACRES		
				Percent Completed	Data Gap 0.05%	Data Gap 0.075%
TOTAL	26,422	501	19	115.01	17.10	83.15

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Munitions Constituents

- If no information is available about MC contamination, sampling is conducted to determine whether it exists. This type of investigation is typically biased to look at areas where contamination is suspected to be the worst case.
- 100 Samples Funded
  - The majority of these samples will be collected at suspected impact areas, as well as at least 10 random samples from other regions of the site.
  - Each sample will be collected from a 10-meter x 10-meter decision unit, which is comprised of 30 soil increments.

Potential Munitions Constituents (MC)

Target Compound List (TCL) Explosives USEPA Method 8330B	Target Analyte List (TAL) Metals USEPA Method 6010B
1,3,5-TNB	Antimony (Sb)
1,3-DNB	Copper (Cu)
2,4-DNT	Lead (Pb)
2,6-DNT	Zinc (Zn)
2-A-4,6-DNT	Mercury (Hg)
2, 4, 6 Trinitrotoluene (TNT)	
2-NT	
3-NT	
4-A-2,6-DNT	
4-NT	
2,4,6-trinitrophenyl-N-methylnitramine (Tetryl)	
1,3,5,7-tetranitro-1,3,5,7-tetrazocane (HMX)	
3,5-dinitroaniline (3,5-DNA)	
Cyclotrimethylenetrinitramine (RDX)	
Nitroglycerine (NG)	
Pentaerythrite Tetranitrate (PETN)	

Develop a Decision Rule

- Action Levels:
  - The Geophysical Data Available is:
    1. Adequate
    2. Should be at a basic minimum survey requirement of 0.05%
    3. Should be at a recommended minimum survey requirement of 0.75%
    4. Other suggestions
  - The Munitions Constituents Sampling should be done:
    1. At suspected impact areas, as well as at least 10 random samples from other regions of the site
    2. Other suggestions

Specification of the Estimator

- The planning team determined that……

Data Quality Objective Development Process

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Specify Limits on Decision Errors

- The acceptance criteria that the collected data will need to achieve in order to minimize the possibility of either making erroneous conclusions or failing to keep uncertainty in estimates to within acceptable levels are….
  - Sources of error (variability)
  - How is total study error controlled?

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Data Quality Objective Development Process

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7. *Optimize the Design for Obtaining Data*

Optimize the Design for Obtaining Data

- Anyone else who should be at this meeting / involved?
- Next Meeting:
  - Review the DQO outputs and existing environmental data.
  - Develop general data collection design alternatives.
  - Is optimal sample size selected to satisfy DQOs?

Remember the 3Rs

- **Recognize**
  - Recognize the munition. When you discover a suspicious item or a possible munition, remember that they can be very dangerous. Do not touch, kick, throw something or do anything else to disturb the item. Also, remember that old munitions are sometimes not readily identifiable, and may appear to be any other metallic or rusty item. Use caution, leave it alone and do not touch it.
- **Retreat**
  - Retreat from the munition. If you know or suspect that you have found a possible munition, mark the area with a small item, such as a hat or pen, and immediately walk away on the same path you came in on. Do not run.
- **Report**
  - Report the munition and its location. Report the location of the suspicious item immediately to your local law enforcement officials by dialing 911.

EOTI 6/12/08

TECHNICAL PROJECT PLANNING (TPP) MEMORANDUM
For Remedial Investigation / Feasibility Study
Former Camp Maxey, Texas

MEETING MINUTES

DATE: 12 June 2008
LOCATION: Powderly, Texas
TOPIC: TPP Meeting #1 for the Former Camp Maxey
TITLE OF PROGRAM: Military Munitions Response Program (MMRP)
CONTRACT: Contract No. W912DY-04-D-0009; Task Order 0010
DIRECTIVE AGENCY: US Army Corps of Engineers (USACE)-Fort Worth District, Stephen Swint
CO-CHAIRPERSONS/FACILITATOR: EOTI Project Manager, Kathy Rollow

NOTES:

- *This TPP Memorandum is a record of the discussions that took place on the above referenced date about said site.*
- *Approval of this TPP Memorandum does* ***not*** *signify agreement with any or all items, only that this is an accurate record of what was discussed.*
- *An US Environmental Protection Agency (EPA) and Texas Commission on Environmental Quality representative were not present at the TPP meeting but were provided all handouts and briefed through conference calls and emails regarding meeting details.*

Introduction

This TPP Memorandum details the events of the Remedial Investigation / Feasibility Study, Former Camp Maxey, Lamar County, Texas TPP meeting held at the Volunteer Fire Department in Powderly, Texas on 12 June 2008. Participants of the meeting included representatives from the USACE (Huntsville and Fort Worth District), Lamar County, the City of Paris, and the EOTI Team (see attendance list). This TPP Memorandum describes the purpose and objectives of the TPP, the meeting attendees, the materials and documentation discussed/reviewed during the TPP, the list of handouts, other TPP documentation, changes/deletions/modifications to the TPP material, and discussion items.

TPP Purpose and Objectives

The purpose of the TPP meeting was to provide community leaders, state regulators, and other interested parties/stakeholders with an understanding of the Formerly Used Defense Site (FUDS) program, an overview of the TPP process, and develop draft Data Quality Objectives (DQOs). Meeting objectives included the following:

- Present the problem and identify possible decisions to the community leaders, state regulators, and other interested parties/ stakeholders.

- Obtain feedback and other site specific information from the community leaders, state regulators, and other interested parties/ stakeholders.
- Review the proposed project schedule and eliminate conflicts for the path forward.
- Conduct an Ordnance and Explosive (OE) Safety Review

Attendance List

Name	Title	Company	Phone	Fax	E-Mail
Shannon Barrentine	Assistant for Pete Kampfer	Paris Economic Development Corp.	903-784-2501	903-984-2503	pedc@paristexas.com
Teresa Carpenter	Chemist	USACE Huntsville	256-895-1659		Teresa.m.carpenter@usace.army.mil
Crystal Duke	Justice of the Peace	Lamar County	903-249-1990	903-346-3759	cnduke@earthlink.net
David Farmer	Project Manager	EOTI	865-220-8668	865-220-8857	dfarmer@eoti.net
Doug Harris	Director of Utilities	City of Paris	903-784-2464	903-784-4809	dharris@paristexas.gov
Kevin Kear	District 2 City Counsel	City of Paris	903-784-2504		Kevin.Kear@hp.com
Mike Madl	Project Manager	Malcolm Pirnie	713-960-7432	713-840-1207	mmadl@pirnie.com
Priscilla McAnally	Library Director	City of Paris	903-785-8531	903-784-6325	pmcanally@paristexas.com
William Noel	Project Manager	CEHNC-OE-DC	256-895-1933	256-895-1378	william.f.noel@usace.army.mil
Kathy Rollow	Project Manager	EOTI	865-220-8668	865-220-8857	krollow@eoti.net
Stephen Swint	Project Manager	USACE – Fort Worth	817-886-1364		Stephen.swint@usace.army.mil

Materials and Documentation Discussed/Reviewed During TPP

The following documents were discussed during the TPP in order to provide the attendees with a familiarity of the site and a source of background information:

- Aerial Depictions of the Area Designated for Characterization including
    - Range Complex Locations
    - Historical Photo Analysis
    - Ordnance Previously Found on the Site Locations
- Draft Conceptual Site Model

Handouts

The following handouts were distributed to the attendees of the TPP meeting for discussion and are included as attachments to this TPP Memorandum:

- Agenda for TPP (Attachment 1)
- Slide presentation (Attachment 2)
- Attendee Sign-In Sheet

The Agenda set the stage for the meeting and was followed as provided. A copy of the slide presentation prepared and presented by the EOTI Team was provided to the attendees for future reference. At the conclusion of the TPP meeting the project schedule was reviewed and copies of the invitee list were made available.

Changes/Deletions/Modifications

No significant changes, deletions, or modifications were suggested upon among parties in attendance.

Discussion Items

Ms. Kathy Rollow, the Project Manager for the EOTI Team, gave the presentation (TPP Memorandum Attachment 2) and led the discussions that arose throughout. The following is a breakdown of the major discussion topics associated with the Former Camp Maxey:

- Community members expressed a concern about exposure risk on the lake shore during a sever drought and suggested including warnings as part of drought emergency procedures.

- Taking into consideration the various annual activities and events concurring around Pat Mayse Lake, the TPP Members concluded that February would be the least intrusive time to conduct field activities.

- The TPP members concluded that geophysical surveying data for characterization should meet the basic minimum area requirement of 0.5% (one half of one percent). The geophysical surveying data requirement for characterization will be calculated as follows: (total acres – Pat Mayse Lake – Texas National Guard – previously investigated acres = 0.5%) This formula will be used to determine if enough data exist and/or the amount of additional data required.

- The TPP members agreed with conducting triplicate MC sampling at 10% of the total samples. Screening levels will be set at a state base value. If a state base value does not exist, EPA Region 6 will be used. The agreed upon target compound list is as follows.

Target Compound List (TCL) Explosives USEPA Method 8330B	Target Analyte List (TAL) Metals USEPA Method 6010B
1,3,5-TNB	Antimony (Sb)
1,3-DNB	Copper (Cu)
2,4-DNT	Lead (Pb)
2,6-DNT	Zinc (Zn)
2-A-4,6-DNT	Mercury (Hg)
2, 4, 6 Trinitrotoluene (TNT)	
2-NT	
3-NT	
4-A-2,6-DNT	
4-NT	
2,4,6-trinitrophenyl-N-methylnitramine (Tetryl)	
1,3,5,7-tetranitro-1,3,5,7-tetrazocane (HMX)	
3,5-dinitroaniline (3,5-DNA)	
Cyclotrimethylenetrinitramine (RDX)	
Nitroglycerine (NG)	
Pentaerythrite Tetranitrate (PETN)	

- Community members concluded that Rights of Entry and Funding will be obstacles for conducting this project.
- The EMS Director and Paris Police Chief will be added to the invitee list.
- The next meeting is tentatively scheduled for 8:00 a.m. September 4, 2008 at the Paris Public Library.

Phase I MFR Worksheet

US Army Corps Of Engineers

Author(s) __EOTI_______ Reviewer ___PDT______
Latest Revision Date __11/18/2008____ Review Date __________

Location: ______Powderly, Texas___________
Site: _ Former Camp Maxey__
Project: _________RI/FS____________________

(Attach Phase I MFR to PMP)

TPP TEAM EM 200-1-2, Paragraph 1.1.1

Decision Makers	Data Type	Data User	Data Gatherer
Customer: USACE, Huntsville Project Manager: William Noel Regulator(s): TCEQ, EPA Region 6 Stakeholders: Municipality of Paris Texas, Pat Mayse Lake, US Fish and Wildlife Service (USFWS),	Demographics / Land Use	Risk, Responsibility, and Compliance perspectives	EOTI / MP
	Site Conditions	Remedy Perspectives	EOTI / MP
	Munitions and Explosive of Concern (MEC)	Risk and Remedy Perspectives	EOTI
	Munitions Constituents (MC)	Risk and Remedy Perspectives	CESWF, EOTI, MP
	Endangered Species	Risk and Compliance Perspectives	CESWF, EOTI, MP

CUSTOMER'S GOALS		EM 200-1-2, Paragraph 1.1.2
Future Land Use(s) @ Site	Regulatory Compliance Status and Issues	Interim Site Closeout Goal (if applicable)
Sectors	MC/MEC	TBD

Site Closeout Statement
Substantially reduce safety hazards for humans, the environment, and the anticipated future land use with respect to munitions and explosives of concern (MEC) and munitions constituents (MC).

Customer's Schedule Requirements
Remedial Investigation / Feasibility Study (RI/FS) approved decision document by June 2010.

Customer's Site Budget
Remedial Investigation / Feasibility Study (RI/FS): Fully Funded

IDENTIFY SITE APPROACH

EXISTING SITE INFORMATION AND DATA **EM 200-1-2, Paragraphs 1.1.3 and 1.2.1**

Attachment(s) to Phase I MFR	Site Information Repository(ies)	Preliminary Conceptual Site Model
Preliminary Conceptual Site Model	CESFW, Paris Public Library and PIRS Website	Yes

POTENTIAL POINTS OF COMPLIANCE **EM 200-1-2, Paragraph 1.2.1.3**

Determination of absence or presence of MEC/MC

Comparison of MC against background levels.

MEDIA OF POTENTIAL CONCERN **EM 200-1-2, Paragraph 1.2.1.4**

Qualitative review of MEC presence.

Quantitative screening of MC background levels.

PROJECT OBJECTIVES **EM 200-1-2, Paragraph 1.2.2**

<u>Munitions and Explosive of Concern</u>

1.1.1.1 State the Problem

- Information regarding the potential distribution of MEC at a site is limited or unavailable.
- The MEC site boundaries are unknown relative to the presence of MEC at a site.
- The extent and location of field sampling for the identification of the quantity and distribution of MEC is unknown.

1.1.1.2 Identify the Decision

- Obtain data regarding the presence of MEC at the site.
- Define the site boundaries.
- Define the MEC sectors.
- Define the locations and the area to be covered during field sampling.

1.1.1.3 Identify Inputs to the Decision

- Historical information (e.g., interview records, field notes, aerial photos, maps) regarding potential MEC.
- Observations:
  - Visual field MEC confirmation
    - Type(s) of MEC
    - Location(s) of MEC items
  - Proximity to inhabited locations and structures (public roads, recreation paths, homes, etc.)
  - Accessibility of the site
- The Conceptual Site Model (i.e. historical information {interview records, field notes, aerial photographs, maps}, anticipated MEC type(s), anticipated MEC distribution, terrain and vegetation, current/proposed land use, and natural and cultural boundaries.)
- Statistically calculated MEC densities based on historical use of area, previous MEC investigation and removals, and current field sampling data.
- Present and/or future land use considerations (i.e., site coverage needs).
- Statistical analysis tools.

1.1.1.4 Define Boundaries of Study

- Established Sectors from the EE/CA will be utilized to subdivide investigation areas.
- Limited to the ground surface and near surface.
- Exclusive of areas with thick vegetative cover.
- Time frame for collection.
- Spatial boundary based on geophysical equipment capabilities for particular MEC types and site conditions.
- Rights of Entry

1.1.1.5 Develop a Decision Rule

- Sampling should be at a recommended minimum survey requirement of 0.5%
- When reconnaissance indicates evidence of MEC use or proximity to areas of MEC use, field sampling for further characterization of MEC quantities and distribution will be recommended.
- If 1) historical information and 2) field sampling or statistical predictions indicate no evidence of MEC in an area, then the area may be reduced to contain only areas exhibiting evidence of MEC.
- If each sector has an approximately homogeneous MEC density, then the sectors at the site have been defined.
- If a sector is not homogenous with respect to MEC density, then the sector boundary must be redefined.
- If a sampling methodology will provide for sampling of a statistically representative portion of the site, then it will be implemented to define the locations and the area to be covered during field sampling.
- If a sampling methodology does not provide for sampling of a statistically representative portion of the site, it will be revised to do so by sampling design modification, or it will not be implemented.

1.1.1.6 Specify Tolerable Limits of Decision Error

- If all the inputs to the decision rule were performed to the standard of Quality Control/Quality Assurance (QC/QA) procedures as specified in the QAPP and the Work Plan, then the error is within tolerable limits.

1.1.1.7 Optimize the Design for Obtaining Data

- Each Sector will be prioritized systematically based on the recommended minimum survey requirement and statistical probability tools. Transects will be utilized to establish a contamination boundary and possibly reduce the area of interest.

Munition Constituents

State the Problem

- Determine whether MC associated with munitions used during training activities is present in surface soil at the former Camp Maxey
    - Assess concentrations of MC of concern
    - Assess potential exposure of receptors to impacted surface soil
    - Assess other media (dependent on results of surface soil sampling)

Identify the Decision

- Determine the types of MC potentially released to the surface soil as a result of former Camp Maxey activities
- Determine the range of MC concentrations in surface soil samples across the site
- Estimate the spatial extent of MC in surface soil

Identify Inputs to the Decision

- Historical information from previous uses of the site
- Location of MEC and munitions debris identified in previous investigations at the former Camp Maxey
- Location of range structures and other evidence of munitions based on additional MEC characterization/geophysical investigations to be completed in the field
- TRRP Protective Concentration Levels (PCLs) for soil
- Screening-level ecological risk assessment (if required)

Define the Boundaries of the Study

- Overall Camp Maxey boundary; MRS boundaries
- Multi-incremental surface soil samples
    - 10 meter (m) by 10 m sampling decision unit
        - 30 increments collected from top 2 inches of soil
    - 30 m by 30 m decision unit
        - 70 increments collected from top 2 inches of soil
    - 50 m by 50 m decision unit
        - 100 increments collected from top 2 inches of soil
- Decision units based on documentation of previous use and previous investigations/removals
    - MC is expected to be found in the known impact areas (especially areas with visible ground scarring or impact craters)
        - 50 m by 50 m grids to be used for impact areas
    - MC may be present in areas of previous removal actions and potentially areas outside the impact areas due to migration
- Decision units based on the intrinsic geophysical MEC investigation in fixed range locations
    - MC is expected to be found in front of and behind the firing lines, in target areas, and in other identified impact areas
        1. 30 m by 30 m grids to be used around firing lines, 10 m by 10 m grids to be used in target areas, and 50 m by 50 m grids to be used in down range impact areas
    - Surface soil from areas within the fixed ranges with identified MEC will also be sampled for MC

Develop a Decision Rule

- Compare analytical results to background levels (metals) and TRRP Tier 1 Residential PCLs (metals and explosives)
- If there are exceedances, additional samples will be collected to delineate the soil to the appropriate assessment levels
- If vertical delineation is necessary, a more extensive subsurface investigation will be conducted

Specify Tolerable Limits on Decision Errors

- Two possible decision errors for this project:
    - Concluding that the suspect medium (surface soil) within the boundaries of the study is contaminated when it is really not (Type I error)

- Concluding that the soil within the boundaries of the study is not contaminated when it really is (Type II error).
- Type I error is more tolerable; minimize Type II errors

Optimize the Design for Obtaining Data

- Utilize multi-incremental sampling design to assure representativeness of sampling
- Employ judgmental sampling – focus decision unit sampling locations at areas most likely to contain residual MC (firing points, target areas, impact areas)
- Analyze at method quantitation limits (MQLs) that are equal to or lower than PCLs to minimize Type II errors

IDENTIFY SITE APPROACH (continued)

REGULATOR AND STAKEHOLDER PERSPECTIVES **EM 200-1-2, Paragraphs 1.2.3**

Regulators	Community Interests	Others

PROBABLE REMEDIES **EM 200-1-2, Paragraph 1.2.4**

EXECUTABLE STAGES TO SITE CLOSEOUT **EM 200-1-2, Paragraph 1.2.5**

Remedial Investigation / Feasibility Study (RI/FS)
Proposed Plan
Decision Document
Remedial Design (RD)
Remedial Action (as necessary)
5-year Review
Time Critical Removal Action (as required)

IDENTIFY CURRENT PROJECT

SITE CONSTRAINTS AND DEPENDENCIES **EM 200-1-2, Paragraph 1.3.1**

- Administrative Constraints and Dependencies

Rights of Entry (ROE)
Funding
Concurrent Planning Programs
Scheduling

- Technical Constraints and Dependencies

Property owner / leaseholder (site access)
Topography / vegetation

- Legal and Regulatory Milestones and Requirements

Consistent with TCEQ and EPA Region 6
Public, stakeholder and regulatory involvement and review of key documents
Funding

CURRENT EXECUTABLE STAGE **EM 200-1-2, Paragraph 1.3.3**

TPP Technical Memorandum
Work Plan
RI Report
FS Report

(Also list project objective numbers and attach Project Objectives Worksheet with descriptions.)

Basic (current project)	Optimum (future projects)	Excessive (objectives that do not lead to site closeout)
RI/FS	NDAI NTCRA TCRA Institutional Controls	

APPENDIX E
TPP MEETING 2

TPP MEMORANDUM
REMEDIAL INVESTIGATION / FEASIBILITY STUDY
FORMER CAMP MAXEY
TEXAS

Remedial Investigation / Feasibility Study
Former Camp Maxey, Texas

Technical Project Planning Meeting

4 September 2008

FUDS Program

- Formerly Used Defense Sites (FUDS)

  FUDS are properties that were formerly owned, leased, possessed by, or otherwise under the operational control of the DoD or military prior to 1986.

Project Objective/Decisions

Objective:

Obtain government acceptance of a Decision Document.

Decisions:

- Implementation of selected responses
  - Further investigation
  - Institutional controls
  - Surface removals
  - Subsurface removals
  - No further action
- Recurring Reviews
- DoD maintains continuing responsibility

June 2008 Meeting Review

- Community members expressed a concern about exposure risk on the lake shore during a severe drought and suggested including warnings as part of drought emergency procedures.
- Taking into consideration the various annual activities and events concurring around Pat Mayse Lake, the TPP Members concluded that February would be the least intrusive time to conduct field activities.
- The TPP members concluded that geophysical surveying data for characterization should meet the basic minimum area requirement of 0.5% (one half of one percent). The geophysical surveying data requirement for characterization will be calculated as follows: (total acres – Pat Mayse Lake – Texas National Guard – previously investigated acres = 0.5%) This formula will be used to determine if enough data exist and/or the amount of additional data required.
- The TPP members agreed with conducting triplicate MC sampling at 10% of the total samples. Screening levels will be set at a state base value. If a state base value does not exist, EPA Region 6 will be used.
- Community members concluded that Rights of Entry and Funding will be obstacles for conducting this project.
- The EMS Director and Paris Police Chief will be added to the invitee list.
- The next meeting should be conducted at the Paris Public Library.

Data Quality Objectives (DQOs)

- DQOs are used to guide decisions and procedures for collecting, analyzing, and evaluating results to meet overall project objectives.
- Identified using the USEPA's seven step DQO development process

Munitions and Explosives of Concern (MEC) Sampling DQOs

1. **State the Problem**
   - Information regarding the potential distribution of MEC at a site is limited or unavailable.
   - The MEC site boundaries are unknown relative to the presence of MEC at a site.
   - The extent and location of field sampling for the identification of the quantity and distribution of MEC is unknown.
2. **Identify the Decision**
   - Obtain data regarding the presence of MEC at the site.
   - Define the site boundaries.
   - Define the MEC sectors.
   - Define the locations and the area to be covered during field sampling.

MEC Sampling DQOs

3. **Identify Inputs to the Decision**
   - Historical information (e.g., interview records, field notes, aerial photos, maps) regarding potential MEC.
   - Observations:
     - Visual field MEC confirmation
       - Type(s) of MEC
       - Location(s) of MEC items
     - Proximity to inhabited locations and structures (public roads, recreation paths, homes, etc.)
     - Accessibility of the site
   - The Conceptual Site Model (i.e. historical information {interview records, field notes, aerial photographs, maps}, anticipated MEC type(s), anticipated MEC distribution, terrain and vegetation, current/proposed land use, and natural and cultural boundaries.)
   - Statistically calculated MEC densities based on historical use of area, previous MEC investigation and removals, and current field sampling data.
   - Present and/or future land use considerations (i.e., site coverage needs).
   - Statistical analysis tools.

EOTI

4 September 2008

MEC Sampling DQOs

4. **Define Boundaries of Study**
   - Established Sectors from the EE/CA will be utilized.
   - Limited to the ground surface and near surface.
   - Exclusive of areas with thick vegetative cover.
   - Time frame for collection.
   - Spatial boundary based on geophysical equipment capabilities for particular MEC types and site conditions.
   - Rights of Entry

EOTI

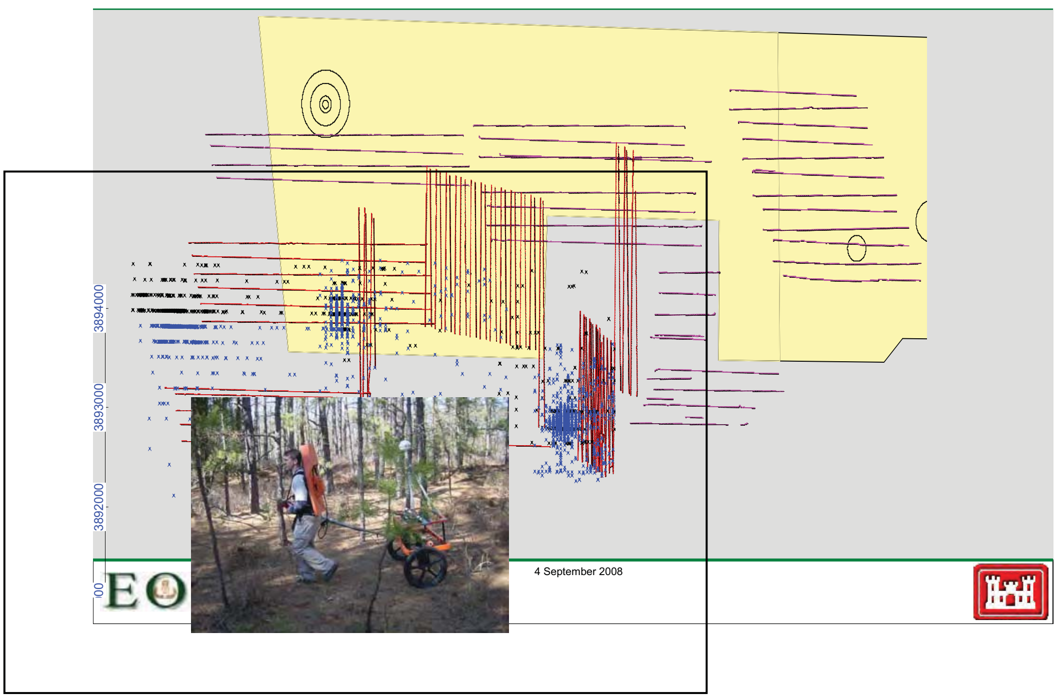
4 September 2008

MEC Sampling DQOs

5. Develop a Decision Rule

- Sampling should be at a recommended minimum survey requirement of 0.5%
- When reconnaissance indicates evidence of MEC use or proximity to areas of MEC use, field sampling for further characterization of MEC quantities and distribution will be recommended.
- If 1) historical information and 2) field sampling or statistical predictions indicate no evidence of MEC in an area, then the area may be reduced to contain only areas exhibiting evidence of MEC.
- If each sector has an approximately homogeneous MEC density, then the sectors at the site have been defined.
- If a sector is not homogenous with respect to MEC density, then the sector boundary must be redefined.
- If a sampling methodology will provide for sampling of a statistically representative portion of the site, then it will be implemented to define the locations and the area to be covered during field sampling.
- If a sampling methodology does not provide for sampling of a statistically representative portion of the site, it will be revised to do so by sampling design modification, or it will not be implemented.

Parallel Transects



MEC Sampling DQOs

6. Specify Tolerable Limits of Decision Error

- If all the inputs to the decision rule were performed to the standard of Quality Control/Quality Assurance procedures as specified in the QAPP and the Work Plan, then the error is within tolerable limits.

7. Optimize the Design for Obtaining Data

- Each Sector will be prioritized systematically based on the recommended minimum survey requirement and statistical probability tools. Transects will be utilized to establish a contamination boundary and possibly reduce the area of interest.

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4 September 2008

Munitions Constituents (MC) Sampling DQOs

1. **State the Problem:**
   - Determine whether MC associated with munitions used during training activities is present in soil at the former Camp Maxey
     - Assess concentrations of MC of concern
     - Assess potential exposure of receptors to impacted surface soil
     - Assess other media (dependent on results of soil sampling)
2. **Identify the Decision:**
   - Determine the types of MC potentially released to the surface soil as a result of Former Camp Maxey activities
   - Determine the range of MC concentrations in soil samples across the site
   - Estimate the vertical and horizontal extents of MC in surface soil
3. **Identify Inputs to the Decision:**
   - Historical information from previous uses of the site
   - Location of MEC and munitions debris identified in previous investigations at the Former Camp Maxey
   - TRRP Protective Concentration Limits (PCLs) for soil
   - Screening-level ecological risk assessment (if required)

EOTI

4 September 2008

MC Sampling DQOs

4. **Define the Boundaries of the Study**
   - Overall Camp Maxey boundary; MRS boundaries
   - Multi-incremental surface soil samples
     - 10 m by 10 m sampling grid (decision unit)
     - 30 increments collected from top 2 inches of soil
   - Decision units based on documentation of previous use and previous investigations/removals
     - MC is expected to be found mainly in the impact areas
     - MEC also found in areas outside the impact areas; sample for MC
5. **Develop a Decision Rule**
   - Compare analytical results to background levels (metals) and Tier 1 Residential PCLs (metals and explosives)
   - If there are exceedances, additional samples will be collected to delineate the soil to the appropriate PCLs

EOTI

4 September 2008

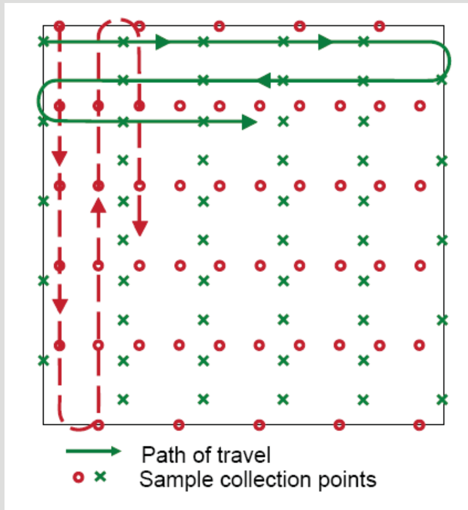
MC Sampling DQOs

6. **Specify Tolerable Limits on Decision Errors**
   - Two possible decision errors for this project:
     - Concluding that the suspect medium (soil) within the boundaries of the study is contaminated when it is really not (Type I error)
     - Concluding that the soil within the boundaries of the study is not contaminated when it really is (Type II error).
   - Type I error is more tolerable; minimize Type II errors
7. **Optimize the Design for Obtaining Data**
   - Utilize multi-incremental sampling design to assure representativeness of sampling
   - Employ judgmental sampling – target areas of known training
   - Analyze at method quantitation limits (MQLs) that are equal to or lower than PCLs to minimize Type II errors

EOTI

4 September 2008

Collection of MI Sample



Project Schedule Highlights

2008

- TPP Meeting 3 — November 20

2009

- Work Plan Finalized — February
- Public Meeting 1 — March
- Field MEC / MC Sampling — March - August
- RI Report Finalized — August
- FS Report Finalized — October
- Public Meeting 2 — November
- Proposed Plan Review — November
- Decision Document — December

Remember the 3Rs

- **Recognize**
  - Recognize the munition. When you discover a suspicious item or a possible munition, remember that they can be very dangerous. Do not touch, kick, throw something or do anything else to disturb the item. Also, remember that old munitions are sometimes not readily identifiable, and may appear to be any other metallic or rusty item. Use caution, leave it alone and do not touch it.

- **Retreat**
  - Retreat from the munition. If you know or suspect that you have found a possible munition, mark the area with a small item, such as a hat or pen, and immediately walk away on the same path you came in on. Do not run.

- **Report**
  - Report the munition and its location. Report the location of the suspicious item immediately to your local law enforcement officials by dialing 911.

EOTI

4 September 2008

EOTI
EXPLOSIVE ORDNANCE TECHNOLOGIES, INC.
ORDNANCE AND EXPLOSIVE REMEDIATION
105 W. Tennessee Ave. • Oak Ridge, TN 37830
Tel: (865) 220-8668 • Fax: (865) 220-8857

September 5, 2008 Maxey-004

US Army Engineering & Support Center
ATTN: CEHNC-OE-DC (William Noel)
4820 University Square
Huntsville, AL 35816-1822

RE: TPP Meeting #2, Former Camp Maxey, Contract No. W912DY-04-D-0009; Task Order 0010

This Letter Report details the events of the Remedial Investigation / Feasibility Study at the Former Camp Maxey in Lamar County, Texas TPP meeting held at the Paris Public Library in Paris, Texas on 4 September 2008. Participants of the meeting included representatives from the USACE (Huntsville, Fort Worth District and St. Louis District), Texas Commission on Environmental Quality (TCEQ), the City of Paris, and the EOTI Team (see attendance list). This TPP Memorandum describes the purpose and objectives of the TPP, the meeting attendees, the materials and documentation discussed/reviewed during the TPP, the list of handouts, other TPP documentation, changes/deletions/modifications to the TPP material, and discussion items.

An US Environmental Protection Agency (EPA) representative was not present at the TPP meeting but was provided all handouts and briefed through conference calls and emails regarding meeting details. Texas Commission on Environmental Quality representative attended the meeting via a speaker phone.

The purpose of the TPP meeting was to provide community leaders, state regulators, and other interested parties/stakeholders an opportunity to develop draft Data Quality Objectives (DQOs).

Attendance List

Name	Title	Company	Phone	Fax	E-Mail
Shannon Barrentine	Assistant for Pete Kampfer	Paris Economic Development Corp.	903-784-2501	903-984-2503	pedc@paristexas.com
Teresa Carpenter	Chemist	USACE Huntsville	256-895-1659		Teresa.m.carpenter@usace.army.mil
Clyde P. Crews, Jr.	Deputy Chief	Paris Fire Dept.	903-784-4870	903-784-5340	ccrews@paristexas.gov
David Farmer	Project Manager	EOTI	865-220-8668	865-220-8857	dfarmer@eoti.net
Randy Fraser	UXO Safety	USACE – St. Louis	314-331-8268		Randy.fraser@usace.army.mil
Eric Kirwan	MEC Technical Lead	USACE – Ft. Worth	817-886-1673		Eric.kirwan@us.army.mil
Bob Hundley	Asst. Chief	Paris Police Depar.	903-737-4110	903-783-4710	bhundley@paristexas.gov

Kevin Kear	District 2 City Counsel	City of Paris	903-784-2504		Kevin.Kear@hp.com
Karl Louis	Chief of Police	City of Paris	903-784-5252	903-783-4710	klouis@paristexas.gov
Mike Madl	Project Manager	Malcolm Pirnie	713-960-7432	713-840-1207	mmadl@pirnie.com
Priscilla McAnally	Library Director	City of Paris	903-785-8531	903-784-6325	pmcanally@paristexas.com
Graciela Moore	Project Hydrogeologist	Malcolm Pirnie	713-960-7402	713-840-1207	grmoore@pirnie.com
William Noel	Project Manager	CEHNC-OE-DC	256-895-1933	256-895-1378	william.f.noel@usace.army.mil
Jeff Paskin	Park Ranger	USACE – Pat Mayse Lake	903-732-3020	903-732-4512	Jeffery.paskin@uscec.army.mil
Kathy Rollow	Project Manager	EOTI	865-220-8668	865-220-8857	krollow@eoti.net
Stephen Swint	Project Manager	USACE – Fort Worth	817-886-1364		Stephen.swint@usace.army.mil

<u>Materials and Documentation Discussed/Reviewed During TPP</u>

The following documents were discussed during the TPP in order to provide the attendees with a familiarity of the site and a source of background information:

- Aerial Depictions of the Area Designated for Characterization including
  - MEC Probability Density
  - Sector Locations
  - Ordnance Previously Found on the Site Locations
- Draft Conceptual Site Model

<u>Handouts</u>

The following handouts were distributed to the attendees of the TPP meeting.

- Agenda for TPP (Attachment 1)
- Attendee Sign-In Sheet

The Agenda set the stage for the meeting and was followed as provided. At the conclusion of the TPP meeting the project schedule was reviewed and copies of the invitee list were made available.

<u>Changes/Deletions/Modifications</u>

No significant changes, deletions, or modifications were suggested upon among parties in attendance.

<u>Discussion Items</u>

Ms. Kathy Rollow, the Project Manager for the EOTI Team, gave the presentation and led the discussions that arose throughout. The following is a breakdown of the major discussion topics associated with the Former Camp Maxey:

- Members of the community informed the TPP Team that a water study committee has been formed to discuss the possibility of increasing the size of Pat Mayse Lake. The decision whether or not to proceed should be made by the end of the calendar year. It would be five to seven years before the construction would begin. TPP Member discussed that a change in the shoreline would change the risk areas and agreed that submitted decisions will include a note regarding the fact that a change in the location of the shoreline could affect the recommendations. A contour map of the lake should be available within the month and will be forwarded to the TCEQ.

- The following DQOs were presented:
  - Munitions and Explosives of Concern (MEC) Sampling DQOs
    1. State the Problem
       - Information regarding the potential distribution of MEC at a site is limited or unavailable.
       - The MEC site boundaries are unknown relative to the presence of MEC at a site.
       - The extent and location of field sampling for the identification of the quantity and distribution of MEC is unknown.
    2. Identify the Decision
       - Obtain data regarding the presence of MEC at the site.
       - Define the site boundaries.
       - Define the MEC sectors.
       - Define the locations and the area to be covered during field sampling.
    3. Identify Inputs to the Decision
       - Historical information (e.g., interview records, field notes, aerial photos, maps) regarding potential MEC.
       - Observations:
         - Visual field MEC confirmation
           - Type(s) of MEC
           - Location(s) of MEC items
         - Proximity to inhabited locations and structures (public roads, recreation paths, homes, etc.)
         - Accessibility of the site
       - The Conceptual Site Model (i.e. historical information {interview records, field notes, aerial photographs, maps}, anticipated MEC type(s), anticipated MEC distribution, terrain and vegetation, current/proposed land use, and natural and cultural boundaries.)
       - Statistically calculated MEC densities based on historical use of area, previous MEC investigation and removals, and current field sampling data.
       - Present and/or future land use considerations (i.e., site coverage needs).
       - Statistical analysis tools.
    4. Define Boundaries of Study
       - Established Sectors from the EE/CA will be utilized.
       - Limited to the ground surface and near surface.
       - Exclusive of areas with thick vegetative cover.
       - Time frame for collection.
       - Spatial boundary based on geophysical equipment capabilities for particular MEC types and site conditions.
       - Rights of Entry
    5. Develop a Decision Rule
       - Sampling should be at a recommended minimum survey requirement of 0.5%

  - When reconnaissance indicates evidence of MEC use or proximity to areas of MEC use, field sampling for further characterization of MEC quantities and distribution will be recommended.
  - If 1) historical information and 2) field sampling or statistical predictions indicate no evidence of MEC in an area, then the area may be reduced to contain only areas exhibiting evidence of MEC.
  - If each sector has an approximately homogeneous MEC density, then the sectors at the site have been defined.
  - If a sector is not homogenous with respect to MEC density, then the sector boundary must be redefined.
  - If a sampling methodology will provide for sampling of a statistically representative portion of the site, then it will be implemented to define the locations and the area to be covered during field sampling.
  - If a sampling methodology does not provide for sampling of a statistically representative portion of the site, it will be revised to do so by sampling design modification, or it will not be implemented.

6. Specify Tolerable Limits of Decision Error
   - If all the inputs to the decision rule were performed to the standard of Quality Control/Quality Assurance procedures as specified in the QAPP and the Work Plan, then the error is within tolerable limits.
7. Optimize the Design for Obtaining Data
   - Each Sector will be prioritized systematically based on the recommended minimum survey requirement and statistical probability tools. Transects will be utilized to establish a contamination boundary and possibly reduce the area of interest.

- Munitions Constituents (MC) Sampling DQOs
  1. State the Problem:
     - Determine whether MC associated with munitions used during training activities is present in soil at the former Camp Maxey
       - Assess concentrations of MC of concern
       - Assess potential exposure of receptors to impacted surface soil
       - Assess other media (dependent on results of soil sampling)
  2. Identify the Decision:
     - Determine the types of MC potentially released to the surface soil as a result of Former Camp Maxey activities
     - Determine the range of MC concentrations in soil samples across the site
     - Estimate the vertical and horizontal extents of MC in surface soil
  3. Identify Inputs to the Decision:
     - Historical information from previous uses of the site
     - Location of MEC and munitions debris identified in previous investigations at the Former Camp Maxey
     - TRRP Protective Concentration Limits (PCLs) for soil
     - Screening-level ecological risk assessment (if required)
  4. Define the Boundaries of the Study
     - Overall Camp Maxey boundary; MRS boundaries
     - Multi-incremental surface soil samples
       - 10 m by 10 m sampling grid (decision unit)
       - 30 increments collected from top 2 inches of soil
     - Decision units based on documentation of previous use and previous investigations/removals
       - MC is expected to be found mainly in the impact areas

- MEC also found in areas outside the impact areas; sample for MC

5. Develop a Decision Rule
    - Compare analytical results to background levels (metals) and Tier 1 Residential PCLs (metals and explosives)
    - If there are exceedances, additional samples will be collected to delineate the soil to the appropriate PCLs
6. Specify Tolerable Limits on Decision Errors
    - Two possible decision errors for this project:
        - Concluding that the suspect medium (soil) within the boundaries of the study is contaminated when it is really not (Type I error)
        - Concluding that the soil within the boundaries of the study is not contaminated when it really is (Type II error).
    - Type I error is more tolerable; minimize Type II errors
7. Optimize the Design for Obtaining Data
    - Utilize multi-incremental sampling design to assure representativeness of sampling
    - Employ judgmental sampling – target areas of known training
    - Analyze at method quantitation limits (MQLs) that are equal to or lower than PCLs to minimize Type II errors

- The TCEQ suggested that we begin collecting rights of entry as soon as possible.

- The Draft Data Quality Objectives (DQOs) will be sent out to the TPP participants and interested parties for comment.

- TCEQ verified that levels are available for the county to be used as background levels for MC.

- 10 meter x 10 meter grids for MC sampling may be too small for a site this size. The decision unit should fit the area and be placed directly in the center of potential targets.

- A quality assurance laboratory is not necessary when using testing in triplicate.

- Soil samples will not be ground when testing for metals.

- Since the Pat Mayse State Wildlife Management Area falls within the borders of the Former Camp Maxey, the Texas Parks and Wildlife Department should be included in future meetings.

- The next meeting is tentatively scheduled for 9:00 a.m. November 20, 2008 at the Paris Public Library.

Sincerely,

Explosive Ordnance Technologies, Inc.

K Rollow

Kathy Rollow, M.B.A.
Project Manager

APPENDIX F
TPP MEETING 3

TPP MEMORANDUM
REMEDIAL INVESTIGATION / FEASIBILITY STUDY
FORMER CAMP MAXEY
TEXAS

Remedial Investigation / Feasibility Study
Former Camp Maxey, Texas

Technical Project Planning Meeting
4 December 2008

EOTI

TPP Team

- Team Introductions

EOTI

ACRONYMS

- FUDS –Formerly Used Defense Sites
- DoD–Department of Defense
- DQO –Data Quality Objective
- MC –Munitions Constituent
- MEC –Munitions and Explosives of Concern:
  - Includes
    - Unexploded Ordnance (UXO),
    - Discarded Military Munitions (DMM), and
    - Munitions Constituents (MC)
- TPP –Technical Project Planning
- PWS – Performance Work Statement

Project Objective/Decisions

Objective:

Obtain government acceptance of a Decision Document.

Decisions:

- Implementation of selected responses
  - Further investigation
  - Institutional controls
  - Surface removals
  - Subsurface removals
  - No further action
- Recurring Reviews
- DoD maintains continuing responsibility

September 2008 Meeting Review

- Members of the community informed the TPP Team that a water study committee has been formed to discuss the possibility of increasing the size of Pat Mayse Lake. The decision whether or not to proceed should be made by the end of the calendar year. It would be five to seven years before the construction would begin. TPP Member discussed that a change in the shoreline would change the risk areas and agreed that submitted decisions will include a note regarding the fact that a change in the location of the shoreline could affect the recommendations. A contour map of the lake should be available within the month and will be forwarded to the TCEQ.
- The TCEQ suggested that we begin collecting rights of entry as soon as possible.
- The Draft Data Quality Objectives (DQOs) were sent out to the TPP participants and interested parties for comment.
- TCEQ verified that levels are available for the county to be used as background levels for MC.
- 10 meter x 10 meter grids for MC sampling may be too small for a site this size. The decision unit should fit the area and be placed directly in the center of potential targets.
- A quality assurance laboratory is not necessary when using testing in triplicate.
- Soil samples will not be ground when testing for metals.
- Since the Pat Mayse State Wildlife Management Area falls within the borders of the Former Camp Maxey, the Texas Parks and Wildlife Department should be included in future meetings.

Data Quality Objectives (DQOs)

- DQOs are used to guide decisions and procedures for collecting, analyzing, and evaluating results to meet overall project objectives.

Munitions and Explosives of Concern (MEC) Sampling DQOs

1. **State the Problem**
   - Information regarding the potential distribution of MEC at a site is limited or unavailable.
   - The MEC site boundaries are unknown relative to the presence of MEC at a site.
   - The extent and location of field sampling for the identification of the quantity and distribution of MEC is unknown.
2. **Identify the Decision**
   - Obtain data regarding the presence of MEC at the site.
   - Define the site boundaries.
   - Define the MEC sectors.
   - Define the locations and the area to be covered during field sampling.

MEC Sampling DQOs

3. **Identify Inputs to the Decision**
   - Historical information (e.g., interview records, field notes, aerial photos, maps) regarding potential MEC.
   - Observations:
     - Visual field MEC confirmation
       - Type(s) of MEC
       - Location(s) of MEC items
     - Proximity to inhabited locations and structures (public roads, recreation paths, homes, etc.)
     - Accessibility of the site
   - The Conceptual Site Model (i.e. historical information {interview records, field notes, aerial photographs, maps}, anticipated MEC type(s), anticipated MEC distribution, terrain and vegetation, current/proposed land use, and natural and cultural boundaries.)
   - Statistically calculated MEC densities based on historical use of area, previous MEC investigation and removals, and current field sampling data.
   - Present and/or future land use considerations (i.e., site coverage needs).
   - Statistical analysis tools.

MEC Sampling DQOs

4. Define Boundaries of Study

- Established Sectors from the EE/CA will be utilized.
- Limited to the ground surface and near surface.
- Exclusive of areas with thick vegetative cover.
- Time frame for collection.
- Spatial boundary based on geophysical equipment capabilities for particular MEC types and site conditions.
- Rights of Entry

MEC Sampling DQOs

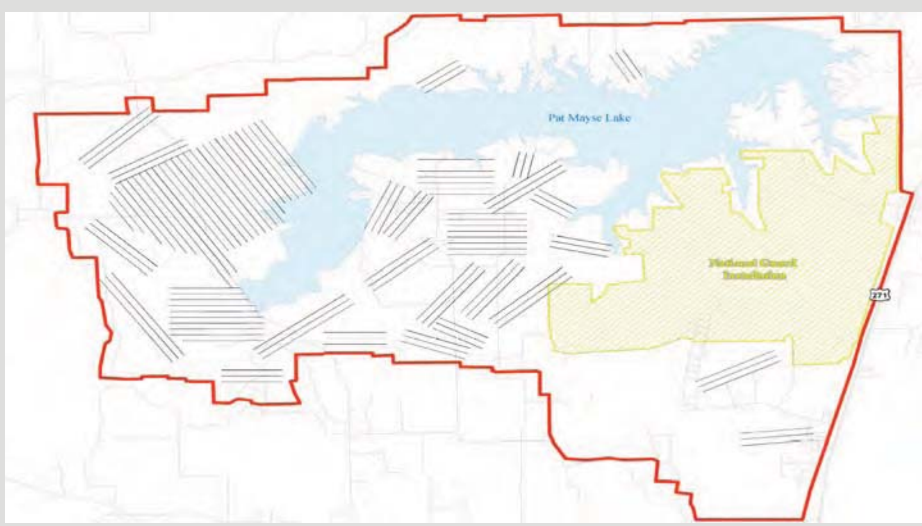
5. Develop a Decision Rule

- Sampling should be in an amount optimal to characterize the site.
  - 3 Foot Wide Transects
  - 500 foot separation
- When reconnaissance indicates evidence of MEC use or proximity to areas of MEC use, field sampling for further characterization of MEC quantities and distribution will be recommended.
- If 1) historical information and 2) field sampling or statistical predictions indicate no evidence of MEC in an area, then the area may be reduced to contain only areas exhibiting evidence of MEC.
- If each sector has an approximately homogeneous MEC density, then the sectors at the site have been defined.
- If a sector is not homogenous with respect to MEC density, then the sector boundary must be redefined.
- If a sampling methodology will provide for sampling of a statistically representative portion of the site, then it will be implemented to define the locations and the area to be covered during field sampling.
- If a sampling methodology does not provide for sampling of a statistically representative portion of the site, it will be revised to do so by sampling design modification, or it will not be implemented.

Digital Geophysical Mapping (DGM)

- ***EOTI will perform DGM, utilizing the Geonics EM61 MK2 time domain electromagnetic (TDEM) system***
- ***Transects 3 feet wide with a 500 foot separation.***
- ***Approximately 96 acres.***

Parallel Transects -- 96 Acres



MEC Sampling DQOs

6. Specify Tolerable Limits of Decision Error

– If all the inputs to the decision rule were performed to the standard of Quality Control/Quality Assurance procedures as specified in the QAPP and the Work Plan, then the error is within tolerable limits.

7. Optimize the Design for Obtaining Data

– Each Sector will be prioritized systematically based on the recommended minimum survey requirement and statistical probability tools. Transects will be utilized to establish a contamination boundary and possibly reduce the area of interest.

Munitions Constituents (MC) Sampling DQOs

1. State the Problem
   - Determine whether MC associated with munitions used during training activities is present in surface soil at the former Camp Maxey
     - Assess concentrations of MC of concern
     - Assess potential exposure of receptors to impacted surface soil
     - Assess other media (dependent on results of surface soil sampling)
2. Identify the Decision
   - Determine the types of MC potentially released to the surface soil as a result of former Camp Maxey activities
   - Determine the range of MC concentrations in surface soil samples across the site
   - Estimate the spatial extent of MC in surface soil
3. Identify Inputs to the Decision
   - Historical information from previous uses of the site
   - Location of MEC and munitions debris identified in previous investigations at the former Camp Maxey
   - Location of range structures and other evidence of munitions based on additional MEC characterization/geophysical investigations to be completed in the field
   - TRRP Protective Concentration Levels (PCLs) for soil
   - Screening-level ecological risk assessment (if required)

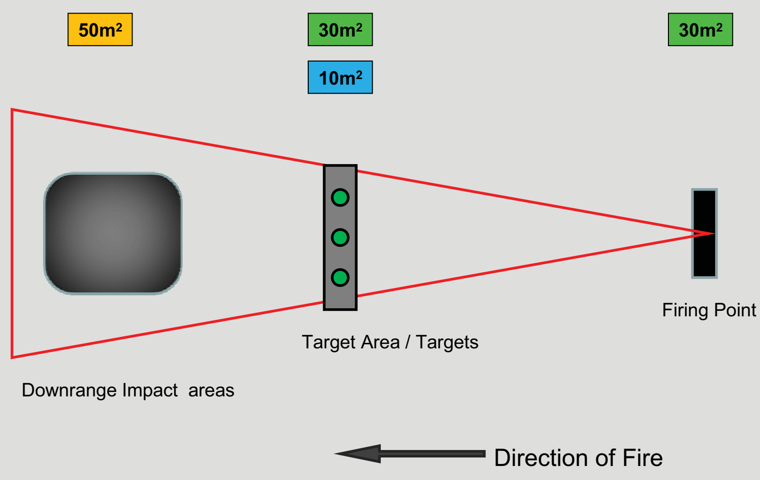
MC Sampling DQOs

4. Define the Boundaries of the Study
   - Overall Camp Maxey boundary; MRS boundaries
   - Multi-incremental surface soil samples
     - 10 meter (m) by 10 m sampling decision unit
       - 30 increments collected
     - 30 m by 30 m decision unit
       - 70 increments collected
     - 50 m by 50 m decision unit
       - 100 increments collected
   - Increments collected within the top two inches of soil

MC Sampling DQOs

4. Define the Boundaries of the Study
   - Decision units based on documentation of previous use and previous investigations/removals
     - MC is expected to be found in the known impact areas (especially areas with visible ground scarring or impact craters)
       - 50 m by 50 m grids to be used for impact areas
     - MC may be present in areas of previous removal actions and potentially areas outside the impact areas due to migration
   - Decision units based on the future (2009) MEC sampling in fixed range locations
     - 30 m by 30 m grids to be used around firing lines
     - 10 m by 10 m grids to be used in target areas
     - 50 m by 50 m grids to be used in down range impact areas

MC Sampling DQOs



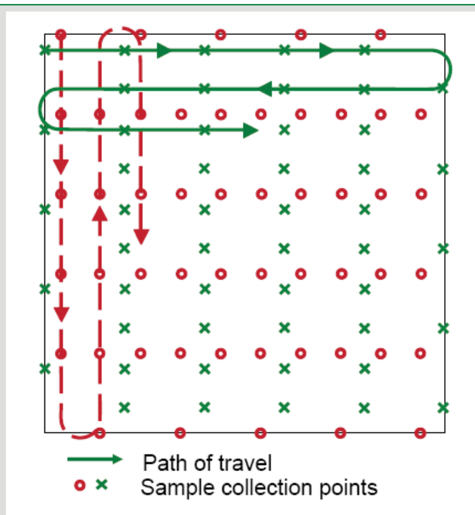
MC Sampling DQOs

5. Develop a Decision Rule
   - Compare analytical results to background levels (metals) and TRRP Tier 1 Residential PCLs (metals and explosives)
   - If there are exceedances, additional samples will be collected to delineate the soil to the appropriate assessment levels
   - If vertical delineation is necessary, a more extensive subsurface investigation will be conducted
6. Specify Tolerable Limits on Decision Errors
   - Two possible decision errors for this project:
     - Concluding that the suspect medium (surface soil) within the boundaries of the study is contaminated when it is really not (Type I error)
     - Concluding that the soil within the boundaries of the study is not contaminated when it really is (Type II error).
   - Type I error is more tolerable; minimize Type II errors

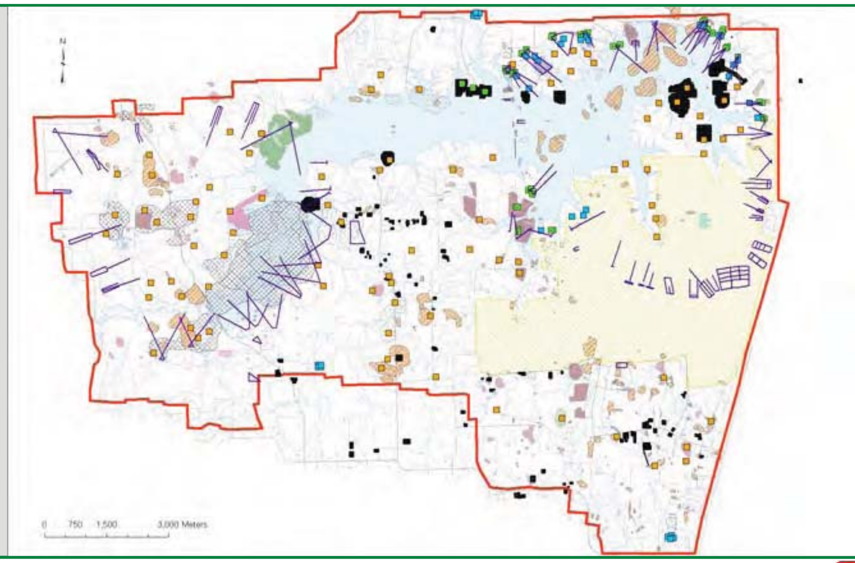
MC Sampling DQOs

7. Optimize the Design for Obtaining Data
   – Utilize multi-incremental sampling design to assure representativeness of sampling
   – Employ judgmental sampling – focus decision unit sampling locations at areas most likely to contain residual MC (firing points, target areas, impact areas)
   – Analyze at method quantitation limits (MQLs) that are equal to or lower than PCLs to minimize Type II errors

Collection of MI Sample



Proposed Decision Units



Munitions Constituents

Target Compound List (TCL) Explosives USEPA Method 8330B	Target Analyte List (TAL) Metals USEPA Method 6010B
1,3,5-TNB	Antimony (Sb)
1,3-DNB	Copper (Cu)
2,4-DNT	Lead (Pb)
2,6-DNT	Zinc (Zn)
2-A-4,6-DNT	Mercury (Hg)
2, 4, 6 Trinitrotoluene (TNT)	
2-NT	
3-NT	
4-A-2,6-DNT	
4-NT	
2,4,6-trinitrophenyl-N-methylnitramine (Tetryl)	
1,3,5,7-tetranitro-1,3,5,7-tetrazocane (HMX)	
3,5-dinitroaniline (3,5-DNA)	
Cyclotrimethylenetrinitramine (RDX)	
Nitroglycerine (NG)	
Pentaerythrite Tetranitrate (PETN)	

Project Schedule Highlights

2009

• Work Plan Finalized	February
• Public Meeting 1	March
• Field MEC / MC Sampling	March – July

2010

• RI Report Finalized	November
• FS Report Finalized	January
• Public Meeting 2	February
• Proposed Plan Review	February
• Decision Document	April

Remember the 3Rs

- **Recognize**
  - Recognize the munition. When you discover a suspicious item or a possible munition, remember that they can be very dangerous. Do not touch, kick, throw something or do anything else to disturb the item. Also, remember that old munitions are sometimes not readily identifiable, and may appear to be any other metallic or rusty item. Use caution, leave it alone and do not touch it.
- **Retreat**
  - Retreat from the munition. If you know or suspect that you have found a possible munition, mark the area with a small item, such as a hat or pen, and immediately walk away on the same path you came in on. Do not run.
- **Report**
  - Report the munition and its location. Report the location of the suspicious item immediately to your local law enforcement officials by dialing 911.

EOTI
EXPLOSIVE ORDNANCE TECHNOLOGIES, INC.
ORDNANCE AND EXPLOSIVE REMEDIATION
109 W. Tennessee Ave. • Oak Ridge, TN 37830
Tel: (865) 220-8668 • Fax: (865) 220-8857

December 6, 2012 Maxey-019

Commander, US Army Engineering & Support Center, Huntsville
Attn: USAESCH-OE-DC, John Cook
4820 University Square
Huntsville, Alabama 35816-1822

RE: Technical Project Planning (TPP) Meeting 4 Memorandum, Remedial Investigation / Feasibility Study, Former Camp Maxey, Texas

This TPP Memorandum provides a summary of the subject meeting held in Austin, TX on July 12, 2012. TPP meetings were previously held in Paris (December 2008) Powderly (June 2008) and Paris (September 2008), Texas. Participants of the meeting included representatives from the United States Army Corps of Engineers (USACE) (Huntsville and Fort Worth District), Texas Commission on Environmental Quality (TCEQ) and the Explosive Ordnance Technology, Inc. (EOTI) Team (see Exhibit A). This TPP memorandum describes the purpose and objectives of the meeting, the meeting attendees, and the materials and documentation discussed/reviewed during the meeting.

The purpose of the TPP meeting was to provide state regulators, and other interested parties/stakeholders with an understanding of the Formerly Used Defense Site (FUDS) program, an overview of the TPP process, and develop project DQOs. Meeting purpose and objectives included the following:

- Review the current status of the project
- Finalize the Munitions and Explosives of Concern (MEC) and Munitions Constituents (MC) DQOs and sampling plan in order to finalize the Work Plan and begin field work.
- Obtain concurrence from the Project Delivery Team (PDT) and stakeholders on the revised DQOs and data collection approach to fully characterize the nature and extent of munitions related hazards at the Former Camp Maxey.

Mr. James Daffron, the Project Manager for the EOTI Team, gave the presentation and led the discussions that arose throughout. The following is a breakdown of the major discussion topics associated with the Former Camp Maxey:

- Larger grids will be used in low density areas; 100 x 100 ft grids are proposed. All grids in medium and high density areas will remain at 50 x 50 ft grids.
- The attendees discussed the transect spacing design was revised based on USACE Models of the area of concern.
- It was agreed that the team should perform reconnaissance on the Cave and Mine/Booby Trap Training areas to determine if design transects are necessary.

109 W. Tennessee Ave. • Oak Ridge, TN 37830
Tel: (865) 220-8668 • Fax: (865) 220-8857

The following are included as exhibits to document the discussion that took place during the TPP meeting.

- Exhibit A - List of Attendees
- Exhibit B - Meeting Notes
- Exhibit C - Meeting Agenda
- Exhibit D - Draft Timeline
- Exhibit E - Data Quality Objectives
- Exhibit F - Transect Design
- Exhibit G - Meeting Slides

Please contact Mr. David Jacobs or myself at (865) 220-8668 if you have any questions or need any additional information.

Sincerely,

Explosive Ordnance Technologies, Inc.

Jim Daffron, P.E.
Project Manager

EXHIBIT A
MEETING NOTES

TPP MEETING 4 MEMORANDUM
REMEDIAL INVESTIGATION / FEASIBILITY STUDY
FORMER CAMP MAXEY, TEXAS

EXHIBIT A

Attendance List:

Name	Title	Organization	Phone	E-Mail
John Cook	Project Manager	USACE -Huntsville	256-895-1218	John.T.Cook@usace.army.mil
Kelly Enriquez	Geophysicist	USACE -Huntsville	256-895-1373	Kelly.D.Enriquez@usace.army.mil
Teresa Carpenter	Tech Manager	USACE -Huntsville	256-895-1659	Teresa.M.Carpenter@usace.army.mil
Karan Holmes	Project Manager	USACE – Fort Worth	817-886-1693	Karan.L.Holmes@usace.army.mil
Eric Kirwan	Geophysicist	USACE – Fort Worth	817-886-1673	Stephen.E.Kirwan@usace.army.mil
Jim Daffron	Project Manager	EOTI	865-220-8668	Jdaffron@eoti.net
David Jacobs	Assistant Project Manager	EOTI	865-220-8668	Djacobs@eoti.net
Jen Mayers	Project Manager	Malcolm Pirnie/Arcadis	434-390-3273	Jennifer.BuckelsMayers@arcadis-us.com
Brad Wilkinson	Project manager	TCEQ	512-239-2350	Brad.Wilkinson@tceq.texas.gov
Eugene Mikell	Consultant	UXO Pro, Inc	865-816-3796	eugene@uxopro.com

EXHIBIT B
MEETING NOTES

TPP MEETING 4 MEMORANDUM
REMEDIAL INVESTIGATION / FEASIBILITY STUDY
FORMER CAMP MAXEY, TEXAS

EXHIBIT B

Explosive Ordnance Technologies Inc. (EOTI)
Camp Maxey Remedial Investigation/Feasibility Study (RI/FS)
Technical Project Planning Meeting Minutes

Location: Texas Commission on Environmental Quality (TCEQ) in Austin, Texas
Date: 26 July 2012
Time: 9:00 am
Attendees:

- **EOTI:** Jim Daffron, David Jacobs
- **Malcolm Pirnie/ARCADIS:** Jen Mayers
- **Unites States Army Corps of Engineers (USACE) Ft. Worth:** Eric Kirwan, Karan Holmes
- **USACE Huntsville:** John Cook, Kelly Enriquez, Teresa Carpenter
- **TCEQ:** Brad Wilkinson
- **Unexploded Ordnance (UXO) Pro:** Eugene Mikell

- Jim Daffron (EOTI) led the meeting by presenting the Power Point handouts as well as generated maps of the Camp Maxey Area with proposed transects.
- The lake is not included within the current scope of work and will be, possibly, undertaken under another project.
- Underwater surveys were completed in the lake recently and a final report will be coming out.
  - The goal of the survey was to identify obstacles that may impede future investigations.
  - Areas of submerged trees were identified within the western portion of the lake that would limit use of a towed array; the rest of the lake was fairly clear.
- Eugene Mikell (UXO Pro) mentioned that in a recent Navy project meeting the use of Visual Sample Plan (VSP) as a characterization tool was discounted(*Note: This comment was rescinded 21 August 2012).
  - Kelly Enriquez (USACE Huntsville) mentioned that Environmental Security Technology Certification Program (ESTCP) is funding PNNL to develop tools for characterization in VSP and there is a Navy representative on the ESTCP review board.
- Eugene Mikell suggested extending transects if Munitions and Explosives of Concern (MEC) is found near the end of one, It was decided that the step out procedures are to be added to the MEC Data Quality Objectives (DQOs).
  - The Project Delivery Team (PDT) explained the intent was not to dig along transects but within grids. Grids may be placed along the boundary or transect edges. We have current step out procedures for if MEC is found along a boundary.
  - Eugene requested that the step out procedure be clarified (i.e. step out 50 ft from MEC item)
- Eugene Mikell proposed a change in the procedure for investigation of saturated grids to provide a more cost effective investigation. Eugene Mikell stated there is no reason to dig up 100% of a saturated grid; specify a percentage of anomalies to dig instead. PDT will decide on the percentage to investigate within each grid, this procedure was decided to be added to MEC DQOs.

- Larger grids will be used in low density areas; 100 x 100 ft grids are proposed. All grids in medium and high density areas will remain at 50 x 50 ft grids.
- Transect spacing designed in VSP is typically based on smallest known/suspected munition item.
    - For the west range the spacing is currently based on the 75 millimeter (mm), which have been found there previously. However this is a suspected mortar range so the team will consider adjusting spacing based on the 60 mm mortar.
    - Eric Kirwan (USACE Ft. Worth) offered a alternate solution of using the larger transect spacing based on the 75 mm, then evaluate the results and if nothing is found additional closer space transects can be added to ensure smaller munitions are found.
    - If smaller munitions are found while conducting density transects, additional transects will be added to bound the smaller targets, and this procedure is to be added to the MEC DQOs.
- Within the work plan, justification is needed on the munitions chosen for VSP transect spacing
    - This could be based on what has been found at the area previously vs. all possible munitions.
- An expected Cave area is located on the southwest region of Camp Maxey, Cave areas may possibly have been used as a training ground with ordnance items. Cave Area is of interest because locals may explore the possible Cave Areas.
    - There is little info known on the caves, such as whether the caves still exist, are they collapsed, accessible etc.
    - It was suggested that perhaps a recon should be done first at the start of the RI field activities, then adjust the field work approach.
    - VSP may not be applicable for this site and it was discussed that based on the reconnaissance results grids could be placed in areas if any indications of a cave use is verified.
- A Mine/Booby Trap Training Area was utilized at Camp Maxey in the Mid-West Region. The Mine/Booby Trap Area is of interest because the site may be located near a developed community.
    - VSP may not be applicable here since munitions were placed and there may not be a pattern
    - Suggest recon first at the start of the field work and then revise approach; some areas may be developed and not worth evaluating (munitions would be anticipated at or near the surface)
    - Suggested that UXO estimator be used to place grids in these areas vs. doing transects first.
- Munitions Constituents (MC) samples may also be collected within high density areas from previous investigations
- Karan Holmes (USACE Ft. Worth) suggested holding a public meeting prior to field work, around the October timeframe.
- The PDT discussed getting in touch with Fish and Wildlife to discuss hunting season and any limitations.

EXHIBIT B

- John Cook (USACE Huntsville) is going to look into any restrictions based on endangered species in this area
- TCEQ requested to be added into the draft Quality Assurance Surveillance Plan (QASP)
- MEC DQO comments:
  - Instead of using “multi-purpose land areas” break into East and West Ranges so it matches the maps.
  - Change Geophysical Prove Out (GPO) to Geophysical System Verification (GSV)
  - Under performance criteria:
    - Clarify the daily checks for horizontal accuracy (for all Global Positioning System (GPS) units / Model EM-61)
    - Add analog since this will be using for laying out transects and surface sweeps ahead of DGM. Add sensor check daily.
    - Add IVS pass/fail criteria
  - For real time decisions made in the field, add TCEQ as a reviewer along with the PDT
- Schedule
  - TPP meeting minutes will be prepared and sent out within 2 weeks
  - EOTI will begin work plan immediately; the next version will be an updated Draft Final that will be reviewed concurrently by the PDT, Center of Expertise(CX), and TCEQ
  - Goal is to have the final Work Plan accepted and commence field work in the Fall 2012
  - Entire project must be complete by September 2013
  - The conflict with the hunting season was brought up during the TPP meeting
    - Concerns with Hunting: keeping workers in the field safe, Hunting provides a large cash flow at Maxey so it is imperative to keep the park open, working around the hunter schedule may hinder the schedule production
    - The PDT decided to contact the Wild Life Services at Camp Maxey to obtain more details on the hunting season as well as try to work out a schedule of when field personnel will be able to work with little to no disruption of the hunting season
- American Burying Beetle, an endangered species, was brought up during the TPP
  - John Cook suggested he follow up with the information needed regarding the American Burying Beetle

EXHIBIT C

EXHIBIT C
MEETING AGENDA

TPP MEETING 4 MEMORANDUM
REMEDIAL INVESTIGATION / FEASIBILITY STUDY
FORMER CAMP MAXEY, TEXAS

EXHIBIT C

Remedial Investigation / Feasibility Study

Former Camp Maxey, Texas

Technical Project Planning Meeting
July 26, 2012
9:00 am

- **Welcome / Introductions**
- **Meeting Purpose and Objective**
- **Site Historical Review**
  - **Key Dates in Site History**
  - **Previous Munitions Responses**
  - **Historical Range Map Review**
  - **Current Land Use Review**
- **Project Review**
  - **CERCLA Process**
  - **Project Timeline**
  - **Review of Previous TPP**
- **Path Forward**
  - **Revised Munitions and Explosives of Concern (MEC) DQOs**
    - **Analytical Approach**
    - **Plan for Obtaining Data**
  - **Revised Munitions Constituent (MC) DQOs**
    - **Analytical Approach**
    - **Plan for Obtaining Data**
  - **Sampling Design**
  - **Field Work – Methods**
  - **Right of Entry Needs**
- **Questions and Discussion**
- **MEC Safety Reminder**

EXHIBIT D
DRAFT TIMELINE

TPP MEETING 4 MEMORANDUM
REMEDIAL INVESTIGATION / FEASIBILITY STUDY
FORMER CAMP MAXEY, TEXAS

EXHIBIT D

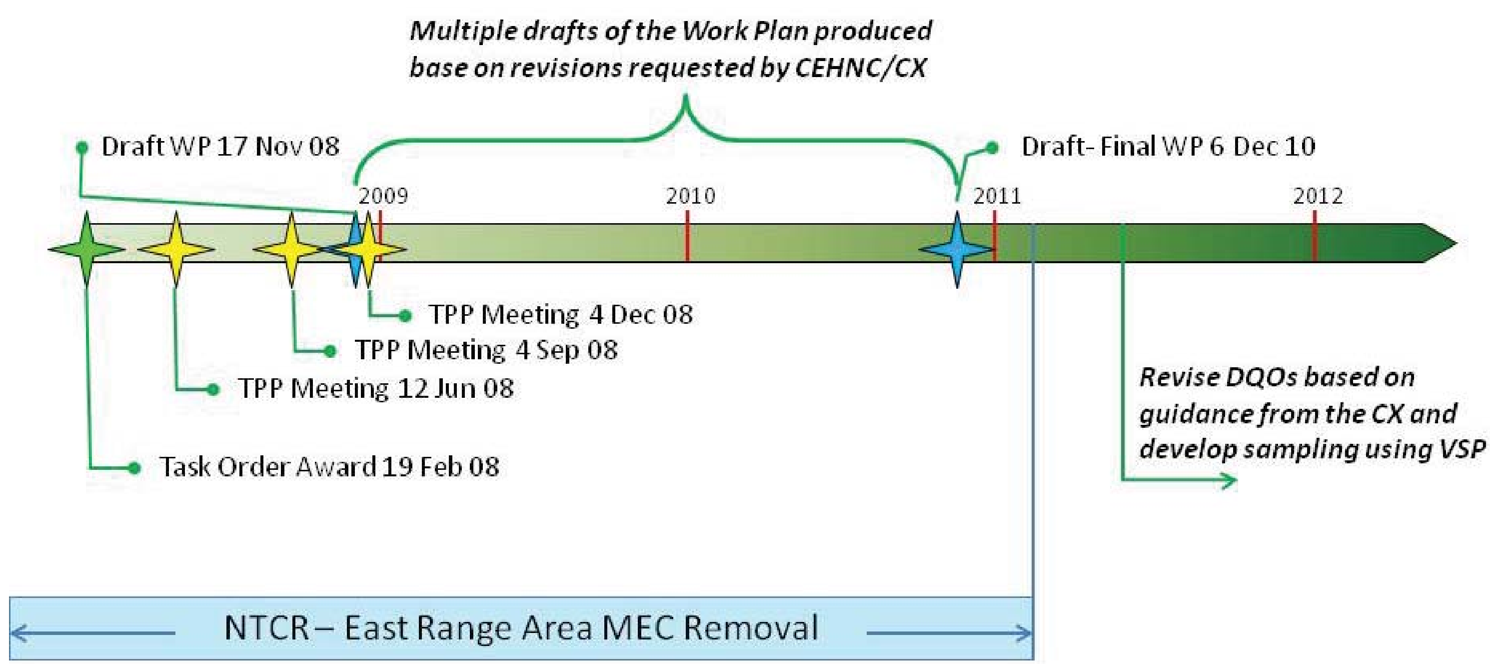

Multiple drafts of the Work Plan produced
base on revisions requested by CEHNC/CX
Draft WP 17 Nov 08
Draft- Final WP 6 Dec 10
2009
2010
2011
2012
TPP Meeting 4 Dec 08
TPP Meeting 4 Sep 08
TPP Meeting 12 Jun 08
Task Order Award 19 Feb 08
Revise DQOs based on
guidance from the CX and
develop sampling using VSP
NTCR – East Range Area MEC Removal

EXHIBIT E

EXHIBIT E
DATA QUALITY OBJECTIVES

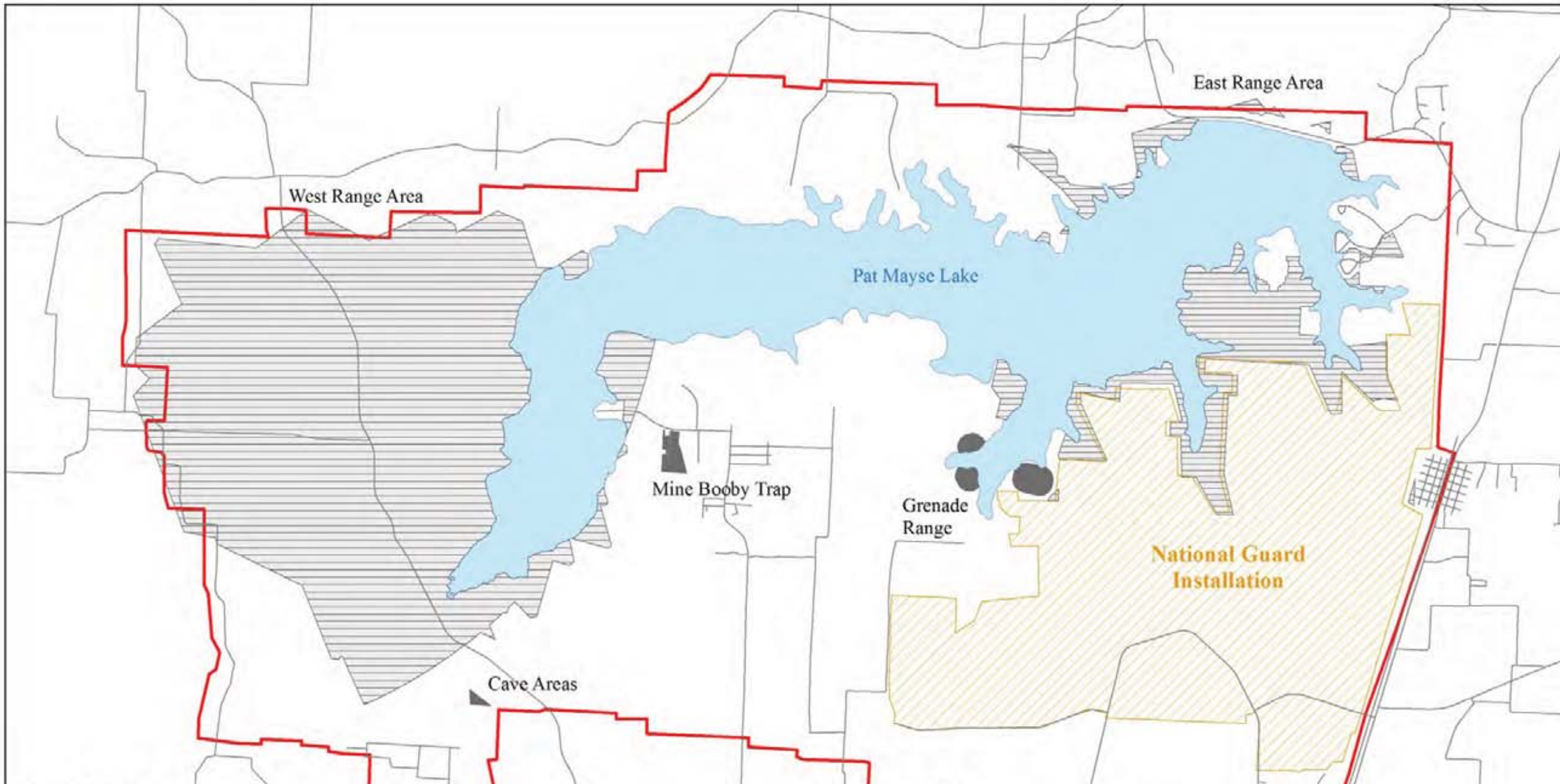
TPP MEETING 4 MEMORANDUM
REMEDIAL INVESTIGATION / FEASIBILITY STUDY
FORMER CAMP MAXEY, TEXAS

DQO	***Problem Statement***	***Project Goals***	***Required Information Inputs***	***Input Boundaries***	***Analytical Approach***	***Performance Criteria***	***Plan for Obtaining Data***
Explanation	**Define the problem that necessitates this study**	**Identify study questions**	**Identify data and information needed to answer study questions**	**Specify the target population and define spatial limits**	**Develop the logic for drawing conclusions from findings**	**Specify probability limits for false rejections and false acceptance decision errors**	**Select the plan that meets the performance criteria**
MRS Characterization*	Determine the nature and Extent of MEC	-Determine the location and type of MEC present -Determine the spatial extent of MEC -Determine if MEC exposure pathways for humans are complete -Determine if MEC pose a human health risk.	-Historical data -CSM -Results of visual observations within transects and grids. -Geophysical data (digital instrument response). -Results of intrusive investigation of identified anomalies. -Survey of site receptors and land use.	Multi-Purpose Land Areas: • Non-Intrusive DGM transects- 83 acres (1 meter wide and spaced 344 ft. apart.) • 100% intrusive Investigation of grids in high, medium and low density areas. Grenade/Cave Areas: • Non-intrusive DGM transects 6.8 acres (1 meter wide and 42.5 ft. spacing) • 100% intrusive Investigation of grids in high, medium and low density areas. Mine/Booby Trap Area: • Non-intrusive DGM transects 3.6 acres (1 meter wide and 26.0 ft. spacing) • 100% intrusive Investigation of grids in high, medium and low density areas. Boundary Identification: • MEC identified along MRS boundaries will trigger step out procedures resulting in discretionary DGM transects/grids. Maximum instrument detection depth will be determined by the GPO and will be used to define the vertical extent of contamination. Investigation Areas that are **thickly vegetated will be avoided and all areas of investigation are limited to available ROE's.	-All MD, frag, and high density anomaly areas will be evaluated as possibly indicative of the location of MEC. -Dig results will be used to define the location and spatial extent of MEC. -Step out procedures will be performed to bound areas impacted by concentrated munitions use that are located at the MRS boundary. -DGM grids with 100% intrusive investigation will be used to assess high, medium and low density areas. *Alternative actions will be formulated in the Feasibility Study based on the location and density of MEC, land use, and other data gathered during the investigation and comparison of those data with criteria established herein.*	DGM system function checks: • Personnel Test • Vibration Test • Static Background / Spike • 6 Line / 2 Line Tests • Repeat Lines (2% daily) Daily GPS Checks (sub-meter for DGPS RTK; larger error up to 10m for density transects allowed) DGM Coverage tool check, coverage > 95% at planned line spacing for all non-fiducial grids DGM Along-line measurement spacing, 98% < 25cm DGM Anomaly reacquisition within 1 meter. No contacts < 15%	Determine anomaly density and distribution from DGM transects using statistical tools; perform DGM surveys of grids in high, medium and low density areas. Data collection along DGM transects -83 acres, 6.8 acres, 3.6 acres. Locations of all grids will be reviewed by USACE prior to field work. 100% intrusive investigation of anomalies identified in DGM grids. Intrusive results will be used in the MEC HA to determine the MEC hazard levels for the site.

DQO	*Problem Statement*	*Project Goals*	*Required Information Inputs*	*Input Boundaries*	*Analytical Approach*	*Performance Criteria*	*Plan for Obtaining Data*
Explanation	**Define the problem that necessitates this study**	**Identify study questions**	**Identify data and information needed to answer study questions**	**Specify the target population and define spatial limits**	**Develop the logic for drawing conclusions from findings**	**Specify probability limits for false rejections and false acceptance decision errors**	**Select the plan that meets the performance criteria**
MRS Characterization*	Determine the nature and Extent of MC associated with munitions use during training activities at the Former Camp Maxey.	-Determine the types of MC potentially released to the surface soil as a result of Former Camp Maxey activities. -Determine the range of MC concentrations across the site. -Determine the spatial extent of MC across the site. -Determine if MC exposure pathways for humans/ecological are complete. -Determine if MC pose a human health risk. -Determine if MC poses an ecological risk.	-Historical data -Locations of high/medium density DGM grids. -Location of range structures, firing points and other evidence of munitions based on observations in the field. -TRRP Protective Concentration Levels (PCL) for soil. -Risk Assessment -Survey of site receptors and land use.	Multi-Purpose Land Areas: • Firing Points • IS collected in high/medium density grids in 0-6 inches of soil and 30 increments Grenade/Cave Areas: • IS collected in high/medium density grids in 0-6 inches of soil and 30 increments Mine/Booby Trap Area: • IS collected in high/medium density grids in 0-6 inches of soil and 30 increments Background: • Surface background samples will be collected from within the MRS boundary but in areas determined not to have been impacted by DoD use. Samples will be 50ft x 50ft MIS samples collected from 0-6" and sampled in triplicate. • If sub-surface samples are required, then 10 discrete sub-surface background samples (6-12") will be collected during the sub-surface sampling mobilization in a location within the MRS boundary that does not have any indication of MEC use. Sub-surface background samples will be analyzed for only those metals that were found to be above the screening criteria in the MIS surface samples.	-Compare analytical results to site specific background values and TRRP Tier 1 Residential PCL. -If the analytical results exceed the agreed upon screening criteria, additional sub-surface samples will be collected in the affected density areas. -If an IS sample indicates risk for human health or the environment, additional step out samples will not be collected. The extent of the horizontal contaminations will equal the extent of the density area from which the sample was collected. -If firing points are identified an IS sample will be collected and analyzed for target metals. -If a subsurface sample is collected adjacent to a MEC item below 6" and is above screening criteria, additional sampling will be conducted to determine vertical delineation. - If a IS decision unit is detected above screening criteria, the grid will be broken up into 4 quadrants, with one subsurface sample collected from each quadrant. These samples will be collected using a geoprobe.	Two possible decision errors for this project: Type I: concluding that there is MC contamination within the MRS boundary of Camp Maxey when there is none. Type II: Concluding that there is no MC contamination within the MRS boundary of Camp Maxey when there is. Type 1 errors are more tolerable; therefore, we need to minimize type II errors. • Utilize IS samples in high/medium density areas to assure samples are representative of DoD use. • When possible, analyze at the MQL that are equal to or lower than the PCL's.	Collect IS samples at Firing Points. Collect IS samples in High/Medium density grids associated with Munitions use. Samples will be analyzed for explosives and a select metals in all of the high/medium density" IS". Samples will be analyzed for select metals in the IS samples collected at the firing points. IS resulting in exceedance of the screening criteria will require additional sub-surface sampling (6-12") to establish extent. In the event that MEC items are consolidated for demolition, a post detonation composite sample will be collected. The sample results will be compared to the TCLP values, if the results are > than 20 times the TCLP values, then the sample would be reanalyzed by the laboratory for TCLP analysis. In the event that an approved screening value is below the approved laboratory's LOD, and the results indicate a non-detect, it will be assumed that the screening value has not been exceeded.

EXHIBIT F
TRANSECT DESIGN

TPP MEETING 4 MEMORANDUM
REMEDIAL INVESTIGATION / FEASIBILITY STUDY
FORMER CAMP MAXEY, TEXAS



Booby Trap Area

If 1 meter wide transects with a parallel pattern are spaced 4 meters between transects (5 meters on centers) over the entire site, these transects have an approximately 90% chance of traversing and detecting any 120 foot diameter (60 foot radius) circular target area having a bivariate normal distribution with an average density of 60 anomalies per acre above the background density of 10 anomalies per acre. This assumes the instrument false negative rate is 0% and flagged windows have at least 95% confidence they have density greater than background.

Cave and Grenade Area

If 1 meter wide transects with a parallel pattern are spaced 9 meters between transects (10 meters on centers) over the entire site, these transects have an approximately 90% chance of traversing and detecting any 160 foot diameter (80 foot radius) circular target area having a bivariate normal distribution with an average density of 100 anomalies per acre above the background density of 10 anomalies per acre. This assumes the instrument false negative rate is 0% and flagged windows have at least 95% confidence they have density greater than background.

East Range Area

If 1 meter wide transects with a parallel pattern are spaced 81 meters between transects (82 meters on centers) over the entire site, these transects have an approximately 90% chance of traversing and detecting any 450 foot diameter (225 foot radius) circular target area having a bivariate normal distribution with an average density of 100 anomalies per acre above the background density of 10 anomalies per acre. This assumes the instrument false negative rate is 0% and flagged windows have at least 95% confidence they have density greater than background.

West Range Area

If 1 meter wide transects with a parallel pattern are spaced 100 meters between transects (101 meters on centers) over the entire site, these transects have an approximately 90% chance of traversing and detecting any 600 foot diameter (300 foot radius) circular target area having a bivariate normal distribution with an average density of 100 anomalies per acre above the background density of 10 anomalies per acre. This assumes the instrument false negative rate is 0% and flagged windows have at least 95% confidence they have density greater than background.

Legend

- Local Roads
- Investigation Transects
- Former Installation Boundary
- National Guard Installation
- Munition Response Sites (MRS)
- Pat Mayse Lake

Notes:
All transects will be investigated up to the lake's shoreline.

03°68'

UTM Zone 15 NAD 83 (Meters)
Data Provided By:
U.S. Army Engineering & Support Center, Huntsville, AL

Miles
1 0.5 0 1

1 0.5 0 1
Kilometers

Location Map:
Former Camp Maxey Lamar County, TX

PROPOSED
TRANSECT LOCATION
June 19, 2012
FORMER CAMP MAXEY
LAMAR CO., TX

Prepared For:
U.S. Army Engineering and Support Center, Huntsville

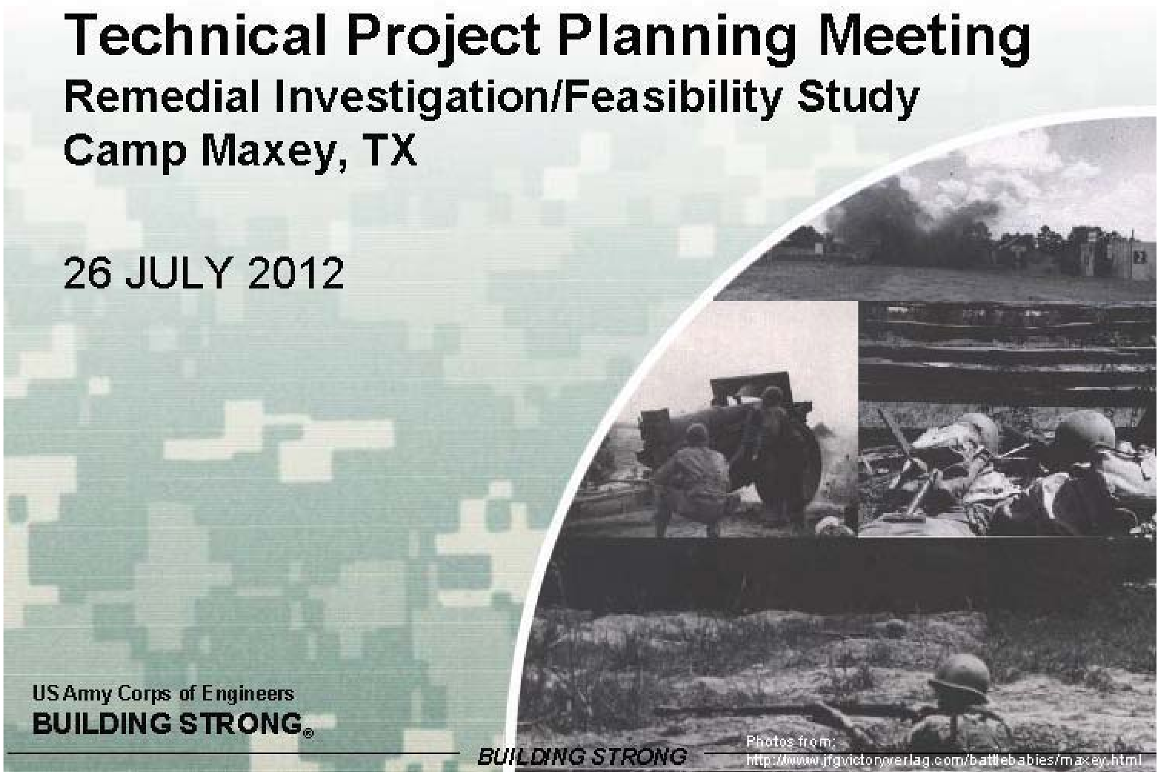
Prepared By:
Explosive Ordnance Technologies, Inc.
EOTI

DRAWN	VERIFIED	APPROVED
M. Norris	D. Farmer	J. Daffron
DATE 06/19/12	FILE Transect 6-19-2012.mxd	
PAGE # 1	SCALE 1 inch = 1 miles	

EXHIBIT G
MEETING POWERPOINT SLIDES

TPP MEETING 4 MEMORANDUM
REMEDIAL INVESTIGATION / FEASIBILITY STUDY
FORMER CAMP MAXEY, TEXAS

EXHIBIT G


Technical Project Planning Meeting
Remedial Investigation/Feasibility Study
Camp Maxey, TX
26 JULY 2012
US Army Corps of Engineers
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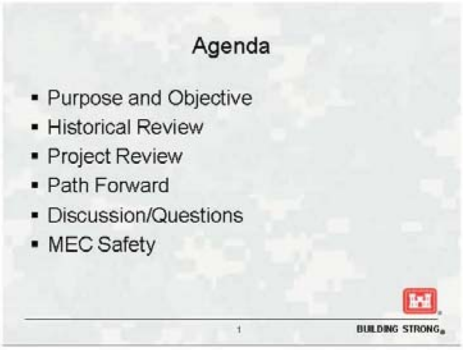
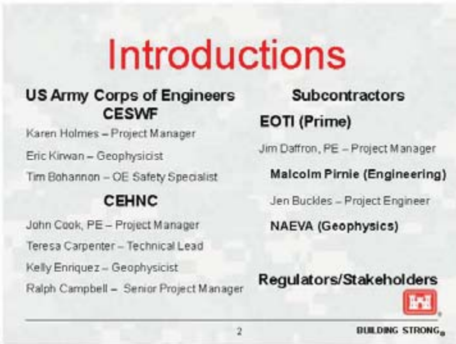
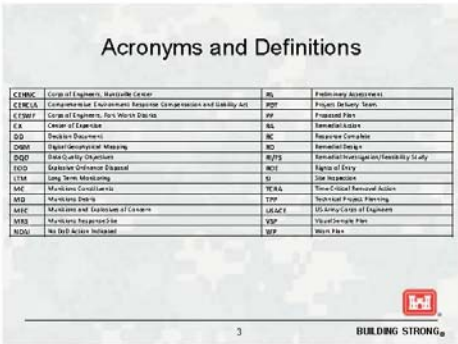
BUILDING STRONG
Photos from:
http://www.jfgvictoryverlag.com/battlebabies/maxey.html

EXHIBIT G

Handout







CEHNC	Corps of Engineers, Huntsville Center	PA	Preliminary Assessment
CERCLA	Comprehensive Environment Response Compensation and Liability Act	PDT	Project Delivery Team
CESWF	Corps of Engineers, Fort Worth District	PP	Proposed Plan
CX	Center of Expertise	RA	Remedial Action
DD	Decision Document	RC	Response Complete
DGM	Digital Geophysical Mapping	RD	Remedial Design
DQO	Data Quality Objectives	RI/FS	Remedial Investigation/Feasibility Study
EOD	Explosive Ordnance Disposal	ROE	Rights of Entry
LTM	Long Term Monitoring	SI	Site Inspection
MC	Munitions Constituents	TCRA	Time-Critical Removal Action
MD	Munitions Debris	TPP	Technical Project Planning
MEC	Munitions and Explosives of Concern	USACE	US Army Corps of Engineers
MRS	Munitions Response Site	VSP	Visual Sample Plan
NDAI	No DoD Action Indicated	WP	Work Plan

Handout

Purpose and Objective

Purpose:

Review the current status of the project and finalize the DQOs and sampling plan in order to finalize the Work Plan and begin field work.

Objective:

Obtain concurrence from the PDT and stakeholders on the revised DQOs and data collection approach to fully characterize the nature and extent of munitions related hazards at the Former Camp Maxey.

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Camp Maxey Historical Review

- 15 July 1942 – Camp Maxey activated as infantry basic training camp
- October 1944 – Designated as infantry Advanced Replacement Training Center
- 1 October 1945 – Camp Maxey was deactivated
- 1948-1949 USACE issued certificates of decontamination which included land use restrictions
- 1967 – Sanders Creek dammed to form Pat Mayes Lake

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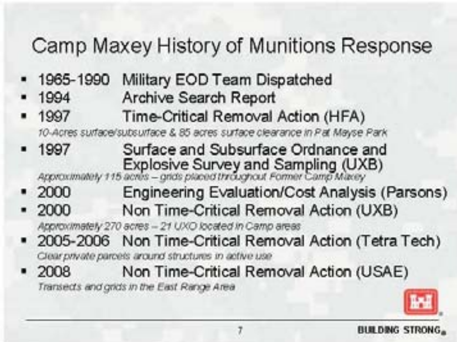
Camp Maxey History of Munitions Response
▪ 1965-1990 Military EOD Team Dispatched
▪ 1994 Archive Search Report
▪ 1997 Time-Critical Removal Action (HFA)
10-Acres surface/subsurface & 85 acres surface clearance in Pat Mayse Park
▪ 1997 Surface and Subsurface Ordnance and Explosive Survey and Sampling (UXB)
Approximately 115 acres – grids placed throughout Former Camp Maxey
▪ 2000 Engineering Evaluation/Cost Analysis (Parsons)
▪ 2000 Non Time-Critical Removal Action (UXB)
Approximately 270 acres – 21 UXO located in Camp areas
▪ 2005-2006 Non Time-Critical Removal Action (Tetra Tech)
Clear private parcels around structures in active use
▪ 2008 Non Time-Critical Removal Action (USAE)
Transects and grids in the East Range Area
7
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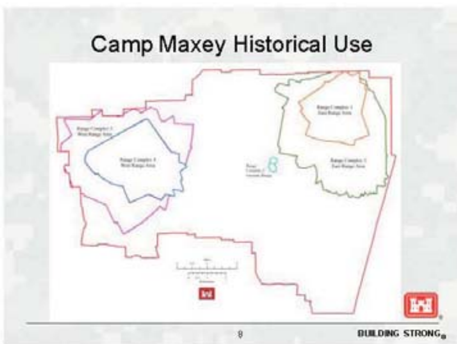
Camp Maxey Historical Use
8
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Camp Maxey Current Use
9
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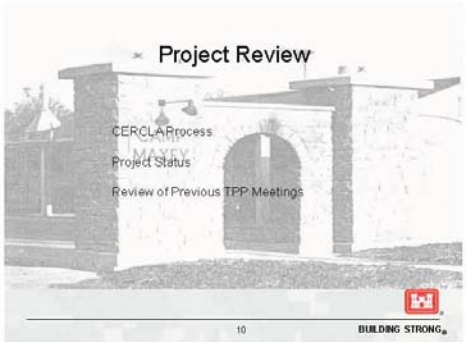
Handout


Project Review
CERCLA Process
Project Status
Review of Previous TPP Meetings
10
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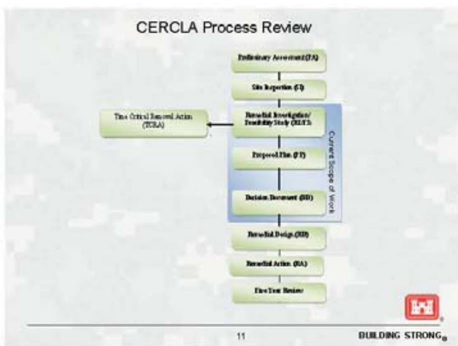
CERCLA Process Review
Preliminary Assessment (PA)
Site Inspection (SI)
Remedial Investigation/ Feasibility Study (RI/FS)
Time Critical Removal Action (TCRA)
Proposed Plan (PP)
Decision Document (DD)
Current Scope of Work
Remedial Design (RD)
Remedial Action (RA)
Five Year Review
11
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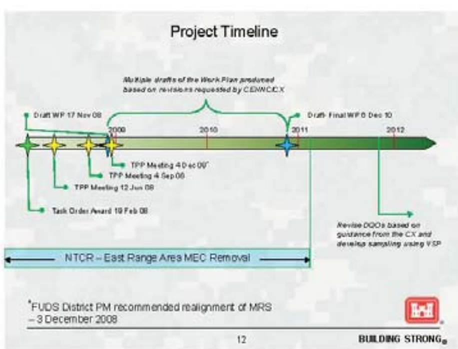
Project Timeline
Multiple drafts of the Work Plan produced based on revisions requested by CEHNC/CX
Draft WP 17 Nov 08
Draft-Final WP 6 Dec 10
2010
2011
2012
TPP Meeting 4 Dec 08*
TPP Meeting 4 Sep 08
TPP Meeting 12 Jun 08
Task Order Award 19 Feb 08
Revise DQOs based on guidance from the CX and develop sampling using VSP
NTCR – East Range Area MEC Removal
*FUDS District PM recommended realignment of MRS – 3 December 2008
12
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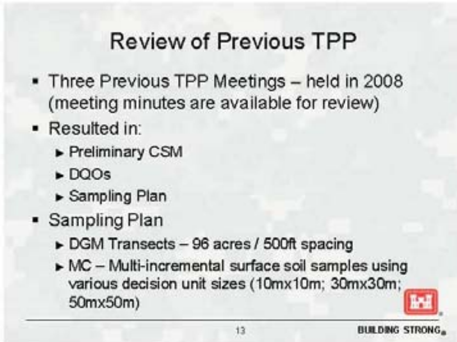
Handout


Review of Previous TPP
▪ Three Previous TPP Meetings – held in 2008 (meeting minutes are available for review)
▪ Resulted in:
► Preliminary CSM
► DQOs
► Sampling Plan
▪ Sampling Plan
► DGM Transects – 96 acres / 500ft spacing
► MC – Multi-incremental surface soil samples using various decision unit sizes (10mx10m; 30mx30m; 50mx50m)
13
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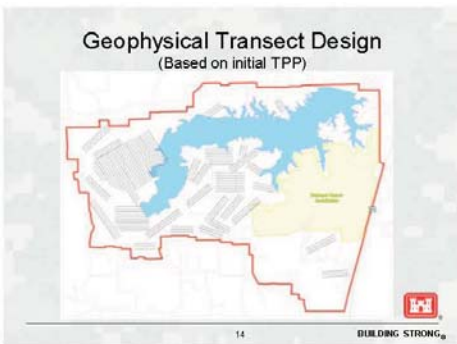
Geophysical Transect Design
(Based on initial TPP)
14
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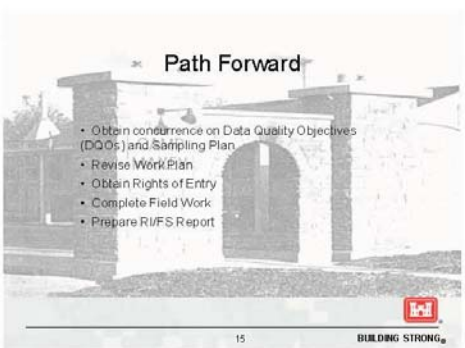
Path Forward
• Obtain concurrence on Data Quality Objectives (DQOs) and Sampling Plan
• Revise Work Plan
• Obtain Rights of Entry
• Complete Field Work
• Prepare RI/FS Report
15
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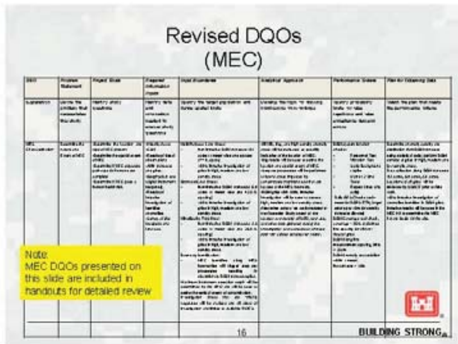
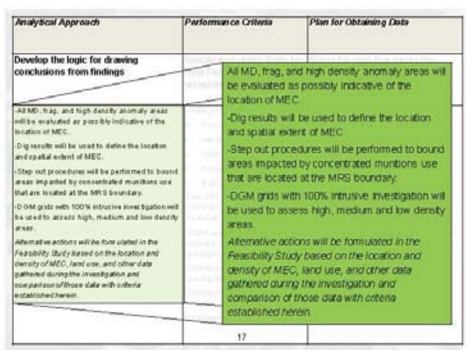
EXHIBIT G

Handout





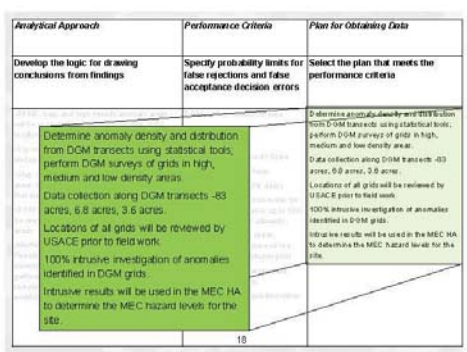


EXHIBIT G

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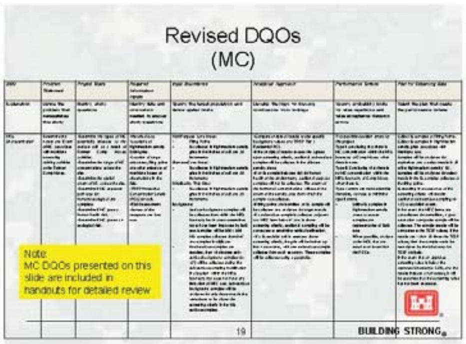

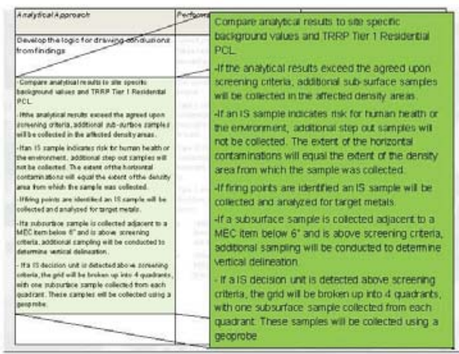

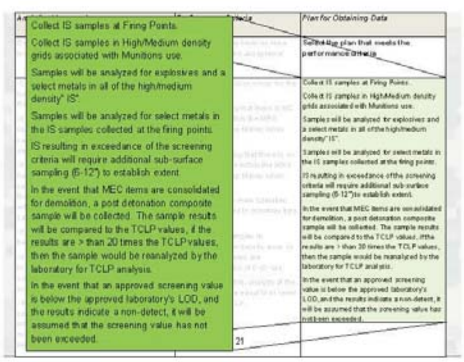

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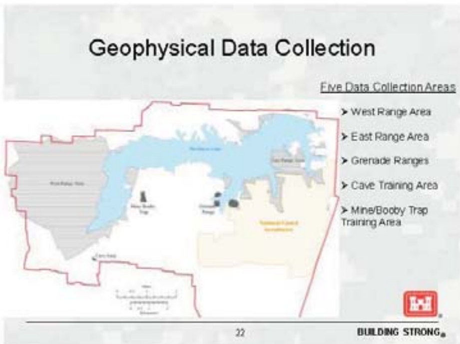
Geophysical Data Collection
Five Data Collection Areas
➢ West Range Area
➢ East Range Area
➢ Grenade Ranges
➢ Cave Training Area
➢ Mine/Booby Trap Training Area
22
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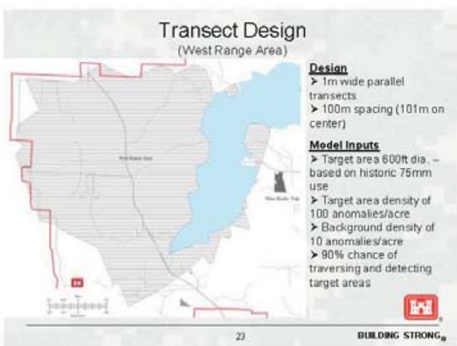
Transect Design
(West Range Area)
Design
➢ 1m wide parallel transects
➢ 100m spacing (101m on center)
Model Inputs
➢ Target area 600ft dia. – based on historic 75mm use
➢ Target area density of 100 anomalies/acre
➢ Background density of 10 anomalies/acre
➢ 90% chance of traversing and detecting target areas
23
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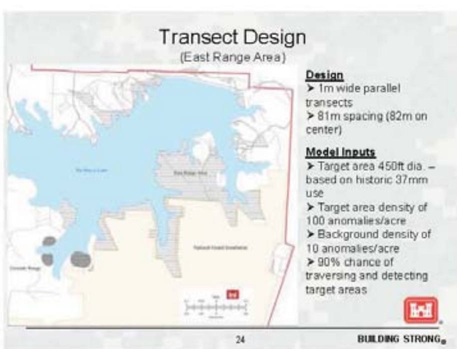
Transect Design
(East Range Area)
Design
➢ 1m wide parallel transects
➢ 81m spacing (82m on center)
Model Inputs
➢ Target area 450ft dia. – based on historic 37mm use
➢ Target area density of 100 anomalies/acre
➢ Background density of 10 anomalies/acre
➢ 90% chance of traversing and detecting target areas
24
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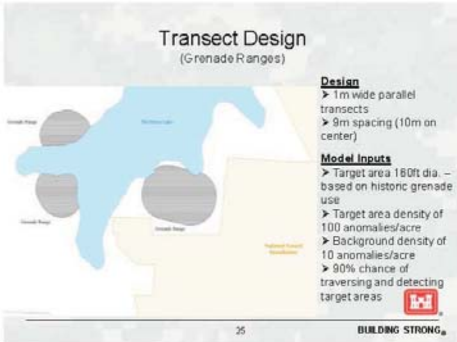
Transect Design
(Grenade Ranges)
Design
➤ 1m wide parallel transects
➤ 9m spacing (10m on center)
Model Inputs
➤ Target area 160ft dia. – based on historic grenade use
➤ Target area density of 100 anomalies/acre
➤ Background density of 10 anomalies/acre
➤ 90% chance of traversing and detecting target areas
25
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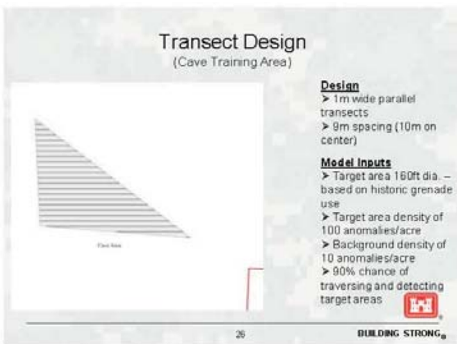
Transect Design
(Cave Training Area)
Design
➤ 1m wide parallel transects
➤ 9m spacing (10m on center)
Model Inputs
➤ Target area 160ft dia. – based on historic grenade use
➤ Target area density of 100 anomalies/acre
➤ Background density of 10 anomalies/acre
➤ 90% chance of traversing and detecting target areas
26
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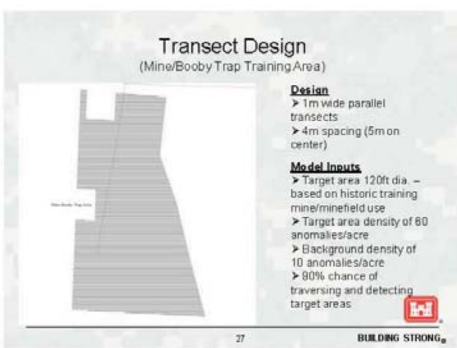
Transect Design
(Mine/Booby Trap Training Area)
Design
➤ 1m wide parallel transects
➤ 4m spacing (5m on center)
Model Inputs
➤ Target area 120ft dia. – based on historic training mine/minefield use
➤ Target area density of 80 anomalies/acre
➤ Background density of 10 anomalies/acre
➤ 90% chance of traversing and detecting target areas
27
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EXHIBIT G

Handout

Field Work
(Geophysical Transects)

- Data collected along transects are analyzed and geophysical anomalies are investigated to determine the boundaries of MEC contamination.
- Data collected using DGM with an EM-61
- Transect Spacing – determined using VSP to ensure 90% chance of detecting a target of a certain size within the area.
- Four areas identified within the MRS:
  - **West Range Area** - 100m spacing (~65 acres of transects)
  - **East Range Area** – 81m spacing (~16 acres of transects)
  - **Grenade /Cave Training Area** – 9m spacing (~9.25 acres of transects)
  - **Mine/Booby Trap Area** – 4 m spacing (~6.75 acres of transects)

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Field Work
(Grids)

- Grids used to determine the concentration and nature of MEC in target areas.
- Data collected using DGM with an EM-61
- Grid location are based on the results of the transect investigation – includes areas with low, medium, and high concentrations of MEC indicators.
- Grid size – 50ft by 50ft (larger grids may be used in low density areas)
- The grid area is estimated to be 10% of the transect area.
- Four areas identified within the MRS:
  - **West Range Area** - 114 grids (~6.5 acres of grids)
  - **East Range Area** – 28 grids (~1.6 acres of grids)
  - **Grenade Area** – 16 grids (~ 0.925 acres of grids)
  - **Mine Area** – 12 Grids (~0.675 acres of grids)

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Field Work
(MC Sampling)

- MC soil sample locations will be determined based on the grid intrusive investigation results
- Decision units for incremental sample collection will be placed within moderate and high density grids selected by the PDT
- Discretionary samples may be collected in other areas of interest, such as firing points
- Decision unit size will match the grid (50 ft x 50 ft)
- 30 increments will be collected for each decision unit sample
- 10% of the samples will be collected in triplicate
- Initial phase will be surface soil sampling only
  - Dependent on the results of the surface soil sampling, subsurface samples may be collected to determine vertical delineation
- MC sampling results will be used to conduct a human and ecological risk assessment as part of the RI

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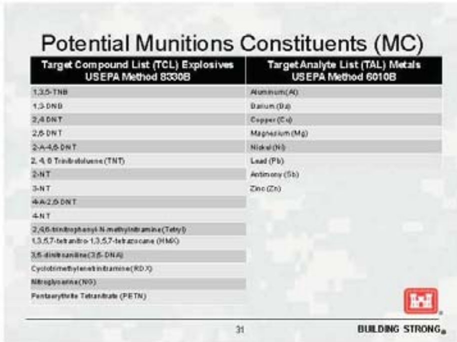
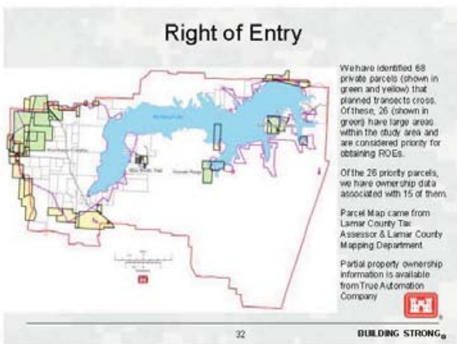
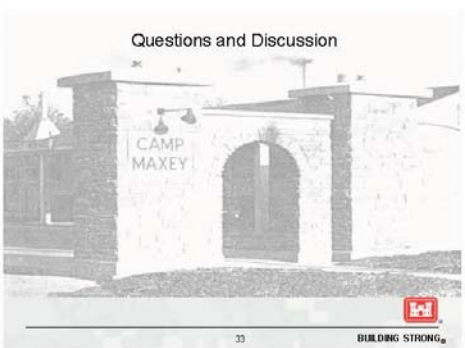
EXHIBIT G

Handout



Target Compound List (TCL) Explosives USEPA Method 8330B	Target Analyte List (TAL) Metals USEPA Method 6010B
1,3,5-TNB	Aluminum(Al)
1,3-DNB	Barium (Ba)
2,4 DNT	Copper (Cu)
2,6 DNT	Magnesium (Mg)
2-A-4,6-DNT	Nickel (Ni)
2, 4, 6 Trinitrotoluene (TNT)	Lead (Pb)
2-NT	Antimony (Sb)
3-NT	Zinc (Zn)
4-A-2,6 DNT	
4-NT	
2,4,6-trinitrophenyl-N-methylnitramine(Tetryl)	
1,3,5,7-tetranitro-1,3,5,7-tetrazocane (HMX)	
3,5-dinitroaniline(3,5-DNA)	
Cyclotrimethylenetrinitramine(RDX)	
Nitroglycerine(NG)	
Pentaerythrite Tetranitrate (PETN)	





Handout

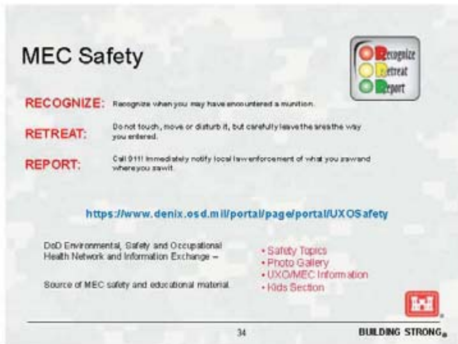

MEC Safety
Recognize
Retreat
Report
RECOGNIZE: Recognize when you may have encountered a munition.
RETREAT: Do not touch, move or disturb it, but carefully leave the area the way you entered.
REPORT: Call 911! Immediately notify local law enforcement of what you saw and where you saw it.
https://www.denix.osd.mil/portal/page/portal/UXOSafety
DoD Environmental, Safety and Occupational Health Network and Information Exchange –
Source of MEC safety and educational material
• Safety Topics
• Photo Gallery
• UXO/MEC Information
• Kids Section
34
BUILDING STRONG

EXHIBIT G

Revised MC DQOs – Camp Maxey FUDS, TX

May 2012

DQO	*Problem Statement*	*Project Goals*	*Required Information Inputs*	*Input Boundaries*	*Analytical Approach*	*Performance Criteria*	*Plan for Obtaining Data*
Explanation	**Define the problem that necessitates this study**	**Identify study questions**	**Identify data and information needed to answer study questions**	**Specify the target population and define spatial limits**	**Develop the logic for drawing conclusions from findings**	**Specify probability limits for false rejections and false acceptance decision errors**	**Select the plan that meets the performance criteria**
MRS Characterization	Determine the nature and Extent of MC associated with munitions use during training activities at the Former Camp Maxey.	-Determine the types of MC potentially released to the surface soil as a result of Former Camp Maxey activities. -Determine the range of MC concentrations across the site. -Determine the spatial extent of MC across the site. -Determine if MC exposure pathways for humans/ecological are complete. -Determine if MC pose a human health risk. -Determine if MC poses an ecological risk.	-Historical data -Locations of high/medium density DGM grids. -Location of range structures, firing points and other evidence of munitions based on observations in the field. -TRRP Protective Concentration Levels (PCL) for soil. -Risk Assessment -Survey of site receptors and land use.	Multi-Purpose Land Areas: • Firing Points • IS collected in high/medium density grids in 0-6 inches of soil and 30 increments Grenade/Cave Areas: • IS collected in high/medium density grids in 0-6 inches of soil and 30 increments Mine/Booby Trap Area: • IS collected in high/medium density grids in 0-6 inches of soil and 30 increments Background: • Surface background samples will be collected from within the MRS boundary but in areas determined not to have been impacted by DoD use. Samples will be 50ft x 50ft MIS samples collected from 0-6" and sampled in triplicate. • If sub-surface samples are required, then 10 discrete sub-surface background samples (6-12") will be collected during the sub-surface sampling mobilization in a location within the MRS boundary that does not have any indication of MEC use. Sub-surface background samples will be analyzed for only those metals that were found to be above the screening criteria in the MIS surface samples.	-Compare analytical results to site specific background values and TRRP Tier 1 Residential PCL. -If the analytical results exceed the agreed upon screening criteria, additional sub-surface samples will be collected in the affected density areas. -If an IS sample indicates risk for human health or the environment, additional step out samples will not be collected. The extent of the horizontal contaminations will equal the extent of the density area from which the sample was collected. -If firing points are identified an IS sample will be collected and analyzed for target metals. -If a subsurface sample is collected adjacent to a MEC item below 6" and is above screening criteria, additional sampling will be conducted to determine vertical delineation. - If a IS decision unit is detected above screening criteria, the grid will be broken up into 4 quadrants, with one subsurface sample collected from each quadrant. These samples will be collected using a geoprobe.	Two possible decision errors for this project: Type I: concluding that there is MC contamination within the MRS boundary of Camp Maxey when there is none. Type II: Concluding that there is no MC contamination within the MRS boundary of Camp Maxey when there is. Type 1 errors are more tolerable; therefore, we need to minimize type II errors. • Utilize IS samples in high/medium density areas to assure samples are representative of DoD use. • When possible, analyze at the MQL that are equal to or lower than the PCL's.	Collect IS samples at Firing Points. Collect IS samples in High/Medium density grids associated with Munitions use. Samples will be analyzed for explosives and a select metals in all of the high/medium density" IS". Samples will be analyzed for select metals in the IS samples collected at the firing points. IS resulting in exceedance of the screening criteria will require additional sub-surface sampling (6-12") to establish extent. In the event that MEC items are consolidated for demolition, a post detonation composite sample will be collected. The sample results will be compared to the TCLP values, if the results are > than 20 times the TCLP values, then the sample would be reanalyzed by the laboratory for TCLP analysis. In the event that an approved screening value is below the approved laboratory's LOD, and the results indicate a non-detect, it will be assumed that the screening value has not been exceeded.

Page 1 of 1

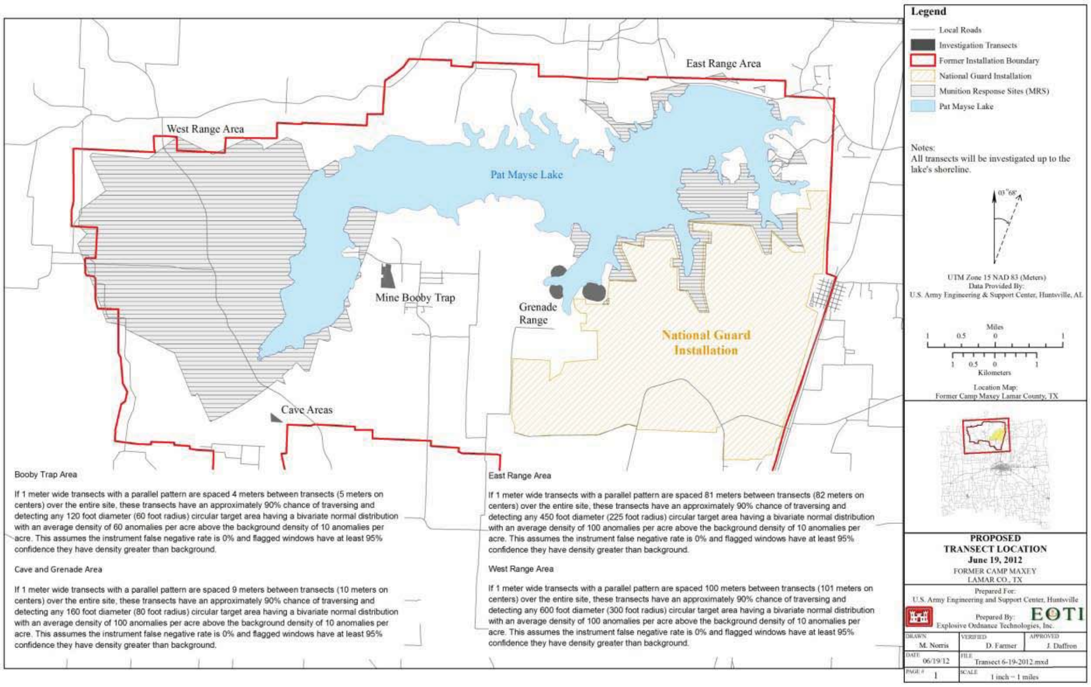
Revised MEC DQOs – Camp Maxey FUDS, TX

May 2012

DQO	*Problem Statement*	*Project Goals*	*Required Information Inputs*	*Input Boundaries*	*Analytical Approach*	*Performance Criteria*	*Plan for Obtaining Data*
Explanation	**Define the problem that necessitates this study**	**Identify study questions**	**Identify data and information needed to answer study questions**	**Specify the target population and define spatial limits**	**Develop the logic for drawing conclusions from findings**	**Specify probability limits for false rejections and false acceptance decision errors**	**Select the plan that meets the performance criteria**
MRS Characterization	Determine the nature and Extent of MEC	-Determine the location and type of MEC present -Determine the spatial extent of MEC -Determine if MEC exposure pathways for humans are complete -Determine if MEC pose a human health risk.	-Historical data -CSM -Results of visual observations within transects and grids. -Geophysical data (digital instrument response). -Results of intrusive investigation of identified anomalies. -Survey of site receptors and land use.	Multi-Purpose Land Areas: • Non-Intrusive DGM transects- 83 acres (1 meter wide and spaced 344 ft. apart.) • 100% intrusive Investigation of grids in high, medium and low density areas. Grenade/Cave Areas: • Non-intrusive DGM transects 6.8 acres (1 meter wide and 42.5 ft. spacing) • 100% intrusive Investigation of grids in high, medium and low density areas. Mine/Booby Trap Area: • Non-intrusive DGM transects 3.6 acres (1 meter wide and 26.0 ft. spacing) • 100% intrusive Investigation of grids in high, medium and low density areas. Boundary Identification: • MEC identified along MRS boundaries will trigger step out procedures resulting in discretionary DGM transects/grids. Maximum instrument detection depth will be determined by the GPO and will be used to define the vertical extent of contamination. Investigation Areas that are "thickly vegetated will be avoided and all areas of investigation are limited to available ROE's.	-All MD, frag, and high density anomaly areas will be evaluated as possibly indicative of the location of MEC. -Dig results will be used to define the location and spatial extent of MEC. -Step out procedures will be performed to bound areas impacted by concentrated munitions use that are located at the MRS boundary. -DGM grids with 100% intrusive investigation will be used to assess high, medium and low density areas. *Alternative actions will be formulated in the Feasibility Study based on the location and density of MEC, land use, and other data gathered during the investigation and comparison of those data with criteria established herein.*	DGM system function checks: • Personnel Test • Vibration Test • Static Background / Spike • 6 Line / 2 Line Tests • Repeat Lines (2% daily) Daily GPS Checks (sub-meter for DGPS RTK; larger error up to 10m for density transects allowed) DGM Coverage tool check, coverage > 95% at planned line spacing for all non-fiducial grids DGM Along-line measurement spacing, 98% < 25cm DGM Anomaly reacquisition within 1 meter. No contacts < 15%	Determine anomaly density and distribution from DGM transects using statistical tools; perform DGM surveys of grids in high, medium and low density areas. Data collection along DGM transects -83 acres, 6.8 acres, 3.6 acres. Locations of all grids will be reviewed by USACE prior to field work. 100% intrusive investigation of anomalies identified in DGM grids. Intrusive results will be used in the MEC HA to determine the MEC hazard levels for the site.

Page 1 of 1

EXHIBIT G



East Range Area
West Range Area
Pat Mayse Lake
Mine Booby Trap
Grenade Range
National Guard Installation
Cave Areas
Booby Trap Area
If 1 meter wide transects with a parallel pattern are spaced 4 meters between transects (5 meters on centers) over the entire site, these transects have an approximately 90% chance of traversing and detecting any 120 foot diameter (60 foot radius) circular target area having a bivariate normal distribution with an average density of 60 anomalies per acre above the background density of 10 anomalies per acre. This assumes the instrument false negative rate is 0% and flagged windows have at least 95% confidence they have density greater than background.
Cave and Grenade Area
If 1 meter wide transects with a parallel pattern are spaced 9 meters between transects (10 meters on centers) over the entire site, these transects have an approximately 90% chance of traversing and detecting any 160 foot diameter (80 foot radius) circular target area having a bivariate normal distribution with an average density of 100 anomalies per acre above the background density of 10 anomalies per acre. This assumes the instrument false negative rate is 0% and flagged windows have at least 95% confidence they have density greater than background.
East Range Area
If 1 meter wide transects with a parallel pattern are spaced 81 meters between transects (82 meters on centers) over the entire site, these transects have an approximately 90% chance of traversing and detecting any 450 foot diameter (225 foot radius) circular target area having a bivariate normal distribution with an average density of 100 anomalies per acre above the background density of 10 anomalies per acre. This assumes the instrument false negative rate is 0% and flagged windows have at least 95% confidence they have density greater than background.
West Range Area
If 1 meter wide transects with a parallel pattern are spaced 100 meters between transects (101 meters on centers) over the entire site, these transects have an approximately 90% chance of traversing and detecting any 600 foot diameter (300 foot radius) circular target area having a bivariate normal distribution with an average density of 100 anomalies per acre above the background density of 10 anomalies per acre. This assumes the instrument false negative rate is 0% and flagged windows have at least 95% confidence they have density greater than background.
Legend
Local Roads
Investigation Transects
Former Installation Boundary
National Guard Installation
Munition Response Sites (MRS)
Pat Mayse Lake
Notes:
All transects will be investigated up to the lake's shoreline.
UTM Zone 15 NAD 83 (Meters)
Data Provided By:
U.S. Army Engineering & Support Center, Huntsville, AL
Miles
1 0.5 0 1
1 0.5 0 1
Kilometers
Location Map:
Former Camp Maxey Lamar County, TX
PROPOSED
TRANSECT LOCATION
June 19, 2012
FORMER CAMP MAXEY
LAMAR CO., TX
Prepared For:
U.S. Army Engineering and Support Center, Huntsville
Prepared By:
Explosive Ordnance Technologies, Inc.
EOTI
DRAWN M. Norris
VERIFIED D. Farmer
APPROVED J. Daffron
DATE 06/19/12
FILE Transect 6-19-2012.mxd
PAGE # 1
SCALE 1 inch = 1 miles

Jim Daffron

From: Jim Daffron
Sent: Tuesday, April 02, 2013 12:34 PM
To: Cook, John T HNC
Cc: Matt Hughs; David Jacobs; Matt Norris
Subject: RE: MAXEY: Discussion with TCEQ on the WP (UNCLASSIFIED)

Maxey WP RTC - 11 Mar 13.xlsx

John

TCEQ comments are addressed on the last tab of the attached spreadsheet.

Jim

-----Original Appointment-----
From: Cook, John T HNC [mailto:John.T.Cook@usace.army.mil]
Sent: Tuesday, April 02, 2013 12:12 PM
To: Otto, Sarah SWF; Brad Wilkinson Texas Commission on Environmental Quality; Jim Daffron; Matt Norris; David Jacobs; Jennifer Buckels; Bradley, Scott G HNC; Selfridge, Bob J HNC; Campbell, Ralph L HNC
Subject: MAXEY: Discussion with TCEQ on the WP (UNCLASSIFIED)
When: Tuesday, April 02, 2013 3:30 PM-4:30 PM (UTC-05:00) Eastern Time (US & Canada).
Where: Call-IN: 877-873-8017 Password: 4178870; Security Code, if needed: 4178870

Classification: UNCLASSIFIED
Caveats: NONE

Team – I realize this is extremely short notice but, it is believed we need to do this today. Thanks, JTC

Classification: UNCLASSIFIED
Caveats: NONE

2 April 2013, 1430 CT

Camp Maxey Call

Purpose: Review responses to final Work Plan comments

Participants:

John Cook, CEHNC
Ralph Campbell, CEHNC
Teresa Carpenter, CEHNC
Kelly Enriquez, CEHNC
Sarah Otto, CESWF
Brad Wilkinson, TCEQ
David Jacobs, EOTI
Jim Daffron, EOTI

The team reviewed the three comments that TCEQ had on the Draft-final work plan. EOTI sent draft responses to comments prior to the meeting and the responses were reviewed during the call. It was agreed that Table 4.3 would be added to the work plan to provide QC requirements corresponding to definable features of work. Minor changes to the DQOs were discussed and it was agreed that a revised Table 3.1 would be sent out for review. The proposed responses comments were acceptable to the Corps and TCEQ and Brad Wilkinson requested access to the EOTI ftp site where the Final Work Plan would be posted. It was agreed that EOTI would provide a link to TCEQ through the USACE.

Jim Daffron

From: Otto, Sarah SWF [Sarah.N.Otto@usace.army.mil]
Sent: Friday, April 05, 2013 10:05 AM
To: Brad Wilkinson
Subject: RE: Camp Maxey
Attachments: Part 1 Maxey Work Plan Final April 2013.pdf

Brad,

I've split it up into two parts to send via email. Let me know if you receive them. Attached is the first part. :)

-Sarah

-----Original Message-----
From: Brad Wilkinson [mailto:brad.wilkinson@tceq.texas.gov]
Sent: Friday, April 05, 2013 8:43 AM
To: Otto, Sarah SWF
Subject: RE: Camp Maxey

Sarah,

I tried 3 separate times and I was unable to access the document. I did use (maxeyftp) and pass (eotiftp). Thanks.

Brad

-----Original Message-----
From: Otto, Sarah SWF [mailto:Sarah.N.Otto@usace.army.mil]
Sent: Thursday, April 04, 2013 3:35 PM
To: Brad Wilkinson
Subject: RE: Camp Maxey

Brad,

Were you able to get it working?

-Sarah

-----Original Message-----
From: Brad Wilkinson [mailto:brad.wilkinson@tceq.texas.gov]
Sent: Thursday, April 04, 2013 1:46 PM
To: Otto, Sarah SWF
Subject: RE: Camp Maxey

Sarah,

You did send me a DQO table yesterday and it looks fine. I am still not able to access the WP with mark ups. Sorry it asked for my ID and Password. Thanks.

Brad

-----Original Message-----
From: Otto, Sarah SWF [mailto:Sarah.N.Otto@usace.army.mil]
Sent: Thursday, April 04, 2013 1:36 PM
To: Brad Wilkinson
Subject: Camp Maxey

Brad,

Have you had a chance to review the Final Work Plan and the attachment I sent out last week? Do you have any other questions? John Cook plans on publishing tomorrow, pending any other comments.

Thank you,

Sarah Otto, EIT, LEED, AP.
Environmental Engineer
U.S. Army Corps of Engineers
Planning, Environmental, and Regulatory Division
Phone: (817) 886-1695

APPENDIX J: MINE AND BOOBY TRAP TRAINING AREA RECON REPORT
MILITARY MUNITIONS RESPONSE PROGRAM
REMEDIAL INVESTIGATION/FEASIBILITY STUDY

FORMER CAMP MAXEY
Paris, Texas

MUNITIONS AND ENVIRONMENTAL SERVICES
9050 Executive Park Drive, Suite 106 A • Knoxville, TN 37923
Tel: (865) 200-8081 • Fax: (865) 766-5971

March 10, 2014 Maxey-036

Commander, US Army Engineering & Support Center, Huntsville
Attn: USAESCH-OE-DC, Dorothy Richards
4820 University Square
Huntsville, Alabama 35816-1822

RE: Remedial Investigation / Feasibility Study, Former Camp Maxey, Texas – Mine and Booby Trap Training Area Recon Report – Revision 1

1. The Former Camp Maxey Range 64 (RMIS Range ID: K06TX030501R05) is believed to have been used for mine and booby trap training between 1942 and 1945. The area identified as Range 64 on historical maps is approximately 36 acres and is located on the east side of the west impact area. No specific information related to the layout of the training area is available. It is believed that M1 practice mines along with flares, simulators and screening smoke may have been used in the training area. In accordance with FM 5-31, *Land Mines and Booby Traps*, 1 November 1943, the normal density of mines was 1½ mines per yard of front. Mines were placed in one of four types of belts, uniform pattern, extended pattern, hasty-mine, or deliberate. It is likely that all four types were emplaced during training at the Former Camp Maxey. It was common practice to recover practice mines after training; and therefore it is unlikely complete practice mines field remain on site. It is more likely that individual mines remain scattered throughout the training area.

2. There is no indication that live mine training ever took place on Camp Maxey; however it is known that M1 antitank practices mines were used. According to TM 9-1940, *Land Mines*, 15 July 1943 these consisted of three parts: empty mine body, spider, and fuze. The three parts are shown in Figure 1. Two types of practice fuzes were used. Dummy fuzes were completely inert but other fuzes contained a smoke-puff charge used to simulate detonation. It is possible that practice mines used at Camp Maxey contained fuzes with smoke-puff charges. According to *The American Arsenal* (Hogg, 2001), the smoke-puff charges contained 60 grains of army black powder designed to ignite 100 grains of red phosphorous, which created a loud noise and smoke which escaped through the holes in the side of the practice mine.

Figure 1 – M1 Practice Mine Components

3. The majority of the former training area lies on three private land parcels. Eight other private parcels overlap smaller portions of the perimeter of the former training area. In order to investigate the area, the Corps of Engineers requested rights of entry (ROE) from each property owner with parcels that contain a portion of the former training area. ROEs were not obtained for large portions of the central and southern portions of the training site, however access was granted in the northern portion and along the perimeter. Enclosure 1 shows the location of the former training area as well as the parcels that now make up the site. Access was granted by owners of the parcels shown in green. The owner of the parcel shown with the red hatching indicates a parcel which the owner retracted

right of entry and so even though a ROE was initially received, the Government does not have access to the property.

4. EOTI conducted an instrument-assisted visual inspection of the portion of the former training area where access was granted on 17 August 2013. EOTI had access to approximately 23.6 % of the suspected former training area. During the inspection, two UXO Technicians walked a meandering path through the accessible area using a Minelab metal detector to help visually identify MD or other indicators of previous mine or booby trap training. The total length of the path (shown in Enclosure 2) was approximately 13263.41 feet. GPS waypoints were recorded at the transect end points and were used to generate the figure showing the approximate path traveled by the team.

5. EOTI did not locate any MEC, MD or indicators of MEC during the inspection; however, a property owner showed the team items that were discovered previously on Parcel 110663 (an area without current authorization to access). The items were identified as M1 practice mines and what appear to be smoke canisters, both consistent with mine training suspected in the area. Enclosure 3 shows photographs from the site inspection and the MD previously discovered in the area.

6. There is strong historical evidence that mine training was conducted in the area designated as the Mine and Booby Trap Training Area. There is also strong indication that practice mines and other MD associated with the training may remain in the area. Mine training, at the time that it was conducted at Camp Maxey, involved placing practice mines in belts that make up the mine fields. Practice mines were typically recovered after training but some were not recovered from the site at Camp Maxey and some likely remain undiscovered. The remaining practice mines are discrete points that would be difficult to locate with certainty by investigating sample areas with evenly spaced transects or representative grids in a manner similar to that used to locate potential target areas for fragmenting munitions used in other areas. The likelihood of discovering individual mines remaining from the previous training during the RI is also reduced significantly by the lack of access to the entire central portion of the site.

7. Since available evidence supports the historical training records, it is recommended that the area be characterized as likely to contain practice mines, smoke canisters and booby trap devices without the collection of additional data. Alternatives considered during the Feasibility Study would consider the potential hazards associated with these devises and would include risk reduction alternative that encompass the entire site.

8. Please let me know if you have any question or need any additional information. Point of contact for this memo is the undersigned at (865) 200-8081.

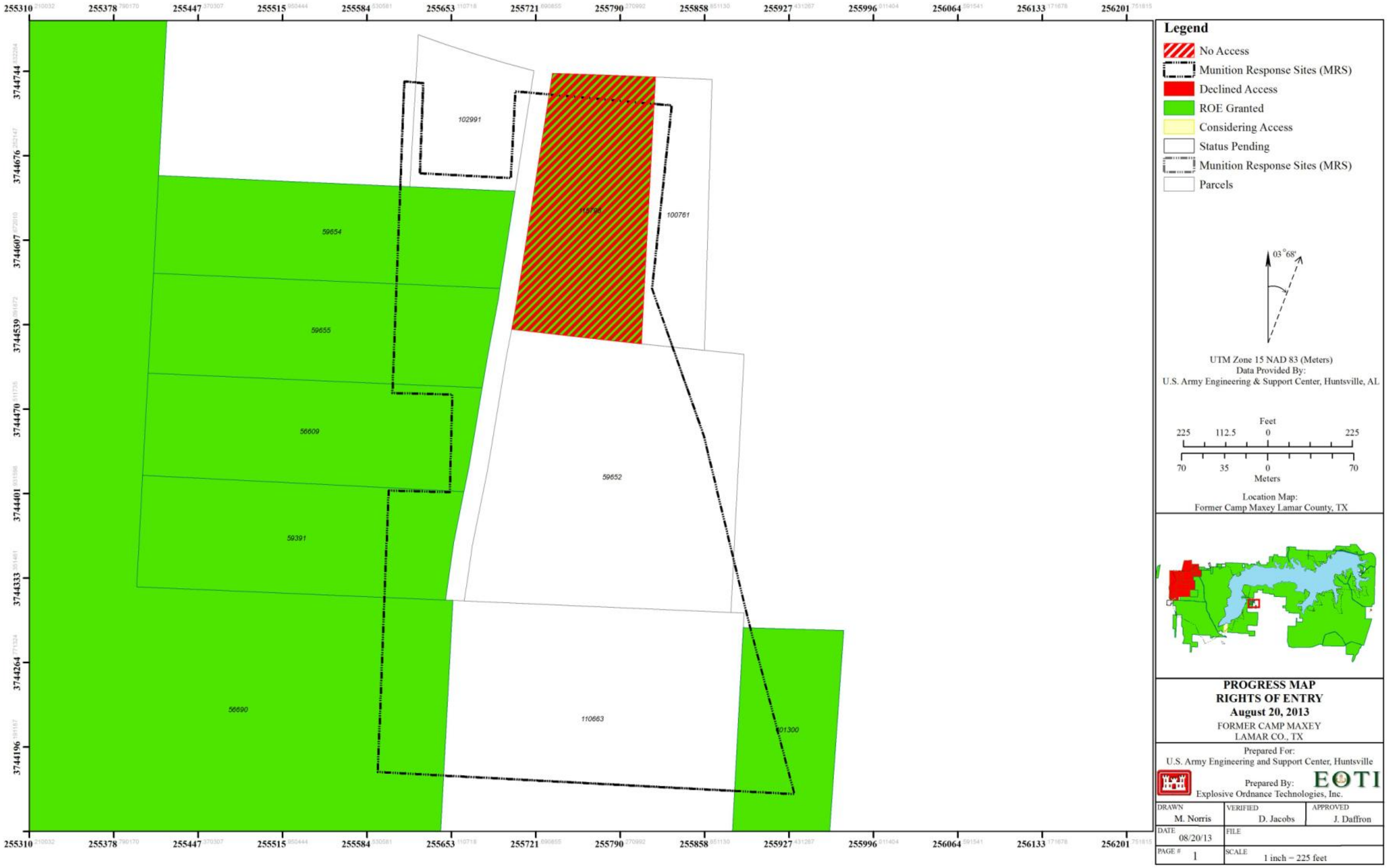
Sincerely,

Explosive Ordnance Technologies, Inc.

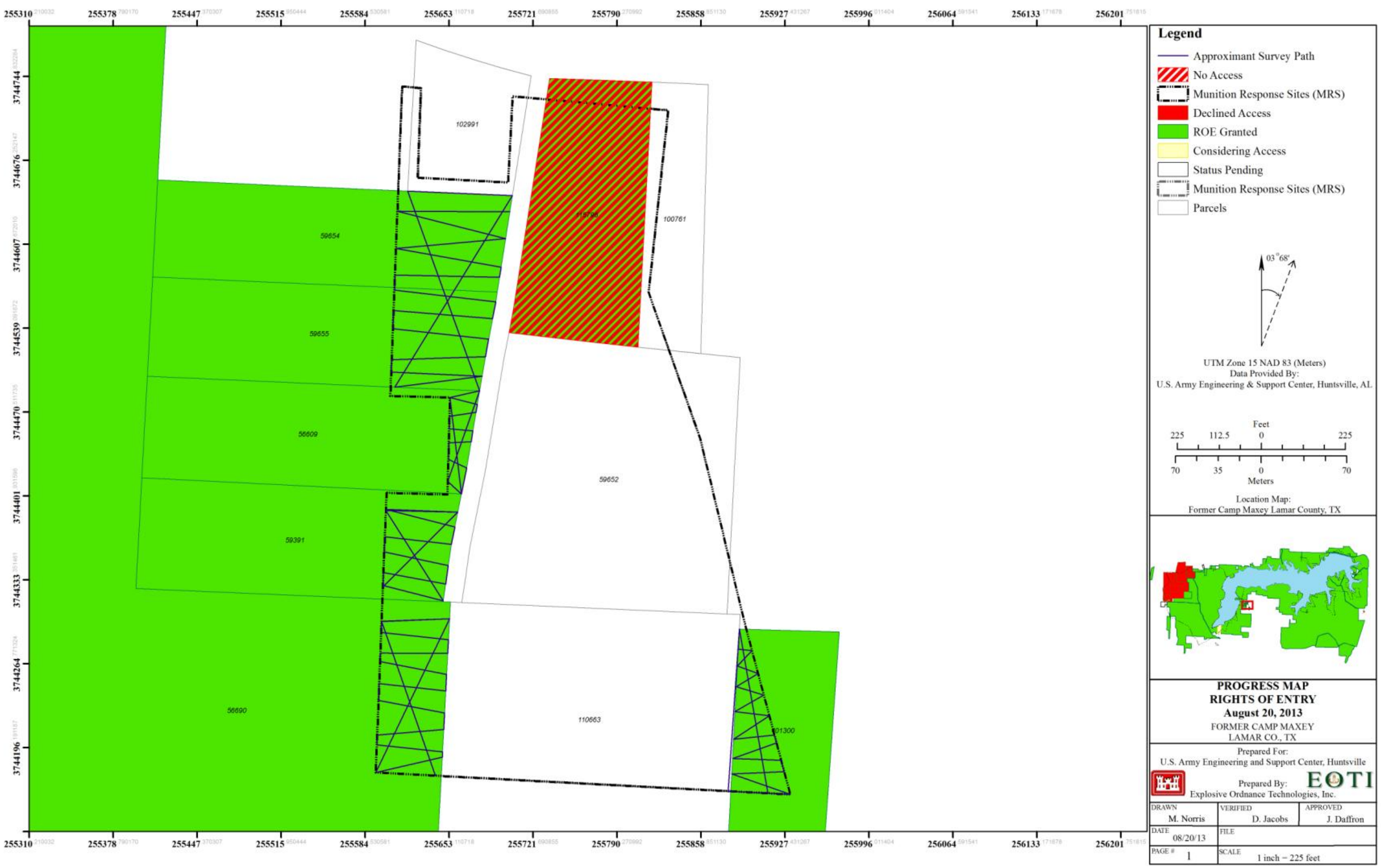
James Y. Daffron, PE
Project Manager

Enclosure: as

Enclosure 1 – Former Mine and Booby Trap Training Area



Enclosure 2 – Reconnaissance Path



Enclosure 3 – Representative Photographs

Photograph taken during the inspection shows typical terrain and vegetation in wooded portions of the site.

Portions of the former training area contain residential development on privately owned property.

Concentrations of cultural debris, including vehicle parts, as shown in this photograph were discovered during the inspection.

MD items previously discovered by a property owner indicate previous training in the area, consistent with historical records. The photograph shows two M1 practice mines and two smoke canisters typical of those used during mine training at Camp Maxey.

APPENDIX K: REMEDIAL ALTERNATIVES COST ESTIMATES
MILITARY MUNITIONS RESPONSE PROGRAM
REMEDIAL INVESTIGATION/FEASIBILITY STUDY

FORMER CAMP MAXEY
Paris, Texas

Table K-19
Eastern Range C
Alternative 4: 100% Subsurface Clearance

ITEM		QUANTITY	UNITS	UNIT COST	CAPITAL COST	ANNUAL O&M COST	PRESENT WORTH COST[1]	ASSUMPTIONS
I. ADMINISTRATIVE ACTIONS								
1. Planning								
a. Remedial Design	*Labor*	80	Hour	$150	$12,000	$0	---	Engineering estimate for labor to draft, submit, and finalize the remedial design
b. Remedial Action Work Plan	*Labor*	550	Hour	$150	$82,500	$0	---	Engineering estimate for labor to draft, submit, and finalize the remedial action work plan
c. Explosive Safety Submittal	*Labor*	100	Hour	$150	$15,000	$0	---	Engineering estimate for labor to draft, submit, and finalize the ESS
SUBTOTAL					$109,500	$0	$0	
II. GENERAL ACTIONS AND SITE PREPARATION								
1. Mobilization / Demobilization	*Labor & Materials*	1	LS	$35,000	$35,000	$0	---	Engineering estimate to mobilize equipment and personnel to and from the site
2. Land Survey	*Labor & Materials*	1	LS	$168,900	$168,900	$0	---	Engineering estimate to conduct survey activities on removal action areas
3. Brush Cutting	*Labor & Materials*	563	per acre	$1,200	$675,600	$0	---	Engineering estimate to conduct brush cutting
4. DGM	*Labor & Materials*	563	per acre	$2,000	$1,126,000	$0	---	Engineering estimate to conduct DGM
4. Surface/Subsurface Clearance	*Labor & Materials*	563	per acre	$4,000	$2,252,000	$0	---	Engineering estimate for UXO technicians to conduct removal action
5. Demolition and Scrap Management	*Labor & Materials*	10	per shot	$8,000	$80,000	$0	---	Engineering estimate for explosive demolition of MEC items (cost includes delivery and storage of demolition materials) and scrap management / disposal
SUBTOTAL					$4,337,500	$0	$0	
SUBTOTAL (I and II)					$4,447,000	$0	$0	
III. LONG-TERM MANAGEMENT, MONITORING & REVIEW								
1. Five Year Review Reports		6	LS	$15,500	$0	$93,000	$11,100	Engineering estimate to compile the Draft, Draft Final, and Final versions of the Five Year Review Report
SUBTOTAL					$0	$93,000	$11,100	
SUBTOTAL (I, II and III)					$4,447,000	$93,000	$11,100	
IV. IMPLEMENTATION COSTS								
1. Administration and Legal	5% of Capital Costs	1	LS	$222,400	$222,400	$0	---	
2. Procurement	5% of Capital Costs	1	LS	$222,400	$222,400	$0	---	
3. Construction Management	12% of Capital Costs	1	LS	$533,600	$533,600	$0	---	
4. Completion Report		1	LS	$20,000	$20,000	$0	---	Engineering estimate to compile the Draft, Draft Final, and Final versions of the Completion Report
5. Cost Contingency	15% of Capital Costs	1	LS	$667,100	$667,100	$0	---	
6. O&M Contingency	15% of O&M Costs	1	LS	$14,000	$0	$14,000	$5,800	
SUBTOTAL					$1,665,500	$14,000	$5,800	
SUBTOTAL (I, II, III, and IV)					$6,112,500	$107,000	$16,900	
A. TOTAL CAPITAL COSTS					$6,113,000			
B. TOTAL ANNUAL COSTS						$107,000		
C. TOTAL PRESENT WORTH OF ANNUAL COSTS							$17,000	
TOTAL PRESENT WORTH OF CAPITAL AND ANNUAL COSTS (A + C)							**$6,130,000**	

LS - Lump Sum
All construction assumed to be conducted in Level D PPE

APPENDIX L: RESIDENTIAL AND COMMERCIAL/INDUSTRIAL TIER 2 PCL CALCULATION SUMMARY
MILITARY MUNITIONS RESPONSE PROGRAM
REMEDIAL INVESTIGATION/FEASIBILITY STUDY

FORMER CAMP MAXEY
Paris, Texas

Appendix L

Residential and Commercial/Industrial Tier 2 $^{GW}SOIL_{Ing}$ PCL Calculation Summary Former Camp Maxey Artillery Ranges, Texas

Chemical of Concern	Maximum Detected Soil Concentration (mg/kg)	Tier 1 $^{GW}Soil_{Ing}$ PCL (mg/kg)	Tier 1 $^{GW}GW_{Ing}$ PCL (mg/L)	Kd (cm^3/g)	H' (unitless)	pH	Calculated Tier 2 $^{GW}Soil_{Ing}$ PCL (mg/kg)
Lead	42 (surface); 86 (subsurface)	1.5	0.015	597	0.00E+00	5.2	90

<u>EQUATION DEFINITION</u>

Tier 2 $^{GW}Soil_{Ing}$ = (GW PCL * LDF / K_{sw})
where:

K_{sw} = ρb / (θ_{ws} + Kd * ρb + H' * θ_{as})
and where:

H'	Henry's Constant, chemical specific, TCEQ Chemical Physical Properties Table, June 2012.
Kd	Lead Kd value based on pH of 5.2 and loamy soil taken from TRRP Figure 30 TAC 350.73(f)(1)(A).
LDF	Leachate dilution factor, TCEQ default for 30 acre (10).
θ_{ws}	Volumetric water content of vadose zone soils (0.16 cm^3-water/cm^3-soil), TCEQ default.
θ_{as}	Volumetric air content of vadose zone soils (0.21 cm^3-air/cm^3-soil), TCEQ default.
ρ_b	Soil bulk density (1.67 g/cm^3), TCEQ default.

APPENDIX M: INSTITUTIONAL ANALYSIS REPORT
MILITARY MUNITIONS RESPONSE PROGRAM
REMEDIAL INVESTIGATION/FEASIBILITY STUDY

FORMER CAMP MAXEY
Paris, Texas

Institutional Analysis Report

Former Camp Maxey RI/FS

1.1 Purpose of Study

The institutional analysis process is conducted during the Remedial Investigation (RI) phase of a munitions and explosives of concern (MEC) site evaluation. This Institutional Analysis Report identifies and analyzes the institutional framework necessary to support the development of institutional controls (ICs) as an effective response action alternative for the Former Camp Maxey Artillery Ranges munitions response sites (MRSs). As stated in the United States (U.S.) Army Corp of Engineers (USACE) Engineer Pamphlet (EP) *Establishing and Maintaining Institutional Controls for Ordnance and Explosives Projects* (EP-1110-1-24), the objectives of the institutional analysis are to:

- illustrate opportunities that exist to implement an IC program at a specific site;
- identify government agencies having jurisdiction over MEC-contaminated lands; and
- assess the appropriateness, capability, and willingness of government agencies to assert their control over MEC contaminated lands.

The IC program and its site-specific objectives are developed during the Feasibility Study (FS) phase of the investigation. The establishment of this program is an important component of a comprehensive risk management strategy for sites containing MEC. The IC program may consist of a single IC or a combination of control strategies. The program should be developed consistent with the desires and requirements of the local community and stakeholder interests. The ultimate product of the IC program is the selection of ICs that are supported locally and reflect specific goals for the site. The specific IC program for each MRS was developed as part of the FS report.

1.2 Methodology

This institutional analysis was conducted through the identification of the relevant stakeholders for the Former Camp Maxey Artillery Ranges (hereafter referred to as Former Camp Maxey). Subsequently, a qualitative assessment was conducted for USACE and each identified stakeholder's capability, interest, and degree of authority to develop, implement, and enforce potential ICs for the areas of concern. Data to support the qualitative assessment were compiled from site investigation reports and stakeholder websites, as well as interviews with stakeholder points of contact, if required.

1.3 Scope of Effort

The scope of this institutional analysis consists of the evaluation of USACE as the lead agency, and stakeholders including: the Texas Commission on Environmental Quality (TCEQ) and local city / county governments. USACE and the identified stakeholders are governmental agencies responsible in some way for activities conducted at the Former Camp Maxey.

Preliminary remediation goals, identified in Section 3 of the RI/FS report, are used to define remedial action objectives (RAOs), which address: (1) MEC, (2) media of concern, (3) potential exposure pathways, and (4) remediation goals. The primary RAO is the protection of human health and the environment from explosive hazards. ICs and land use controls (LUCs) are important considerations during the evaluation of remediation / removal action goals.

Potential ICs and LUCs considered in the FS for the Former Camp Maxey are identified in the following section. The development of specific ICs to implement at the eight MRSs at the Former Camp Maxey was conducted as part of the FS. Although the MRSs do not have an established IC program at this time, it is noted here that mechanisms currently in place restrict access to the MRSs and serve as controls. However, these mechanisms are not specific to the explosive hazards associated with the potential MEC.

1.3.1 Identification of ICs and LUCs for Potential Implementation

ICs are mechanisms that protect property owners and the local community from residual risk on a property contaminated by MEC. ICs are substantially the same as "land use controls" as defined in the Department of Defense's (DoD's) *Interim Policy on LUCs Associated with Environmental Restoration Activities* (31 August 2000). There are three major IC mechanisms/controls: (1) legal mechanisms, (2) engineering controls, and (3) education controls. ICs were developed in detail for each of the eight MRSs as part of the FS. A single IC, a mix of ICs, or ICs in conjunction with removal action will be selected for each of the eight MRSs.

It should be noted that USACE, while the lead agency, has no authority to implement ICs included in any preferred remedial action. ICs included as part of any preferred remedial alternative must be implemented by state, county, municipal, or other local governmental authority. USACE does have the authority to implement LUCs in the form of educational awareness. Potential ICs are as follows:

1.3.1.1 *Legal Mechanisms*

Legal mechanisms do not require the physical maintenance that may be necessary for other ICs; however, they require constant oversight and support in order for them to remain effective. The following legal mechanisms may be used in conjunction with other controls. The list below is not a full list of the potential legal mechanisms but the most commonly utilized. Legal mechanisms would have to be implemented and controlled by local state, city, or county governmental agencies.

1. Proprietary Controls
    a. Easements
        i. Gross Easement - A gross easement is one in which the holder, usually a company or public entity, does not own the land, but has the ability to use it (e.g., land could be continued to be leased for agricultural purposes or as a wildlife management area).

ii. Negative Easement - A negative easement prohibits the use of the land in a manner that would otherwise be legal (e.g., the owner of a property is prohibited from developing the property for another use because of the past use of the site).

iii. Statutory Easement - An easement which restricts the property use to one that is compatible with a specific scenario (e.g., conservation of the environment or scenery, or level of munitions clearance). In the particular case of sites contaminated with MEC, an easement may be enacted that would restrict the new property owner to land uses that are compatible with the level of clearance performed during the removal action. Easements have been used to ensure that the federal government has access to a site to conduct additional response actions or to perform any necessary operations and maintenance at a site that is undergoing active remediation of residual contamination.

b. Restrictive Covenant (also known as a deed restriction)

i. Prohibiting certain types of development, use, or construction

ii. Restricting land use to a limited number of personnel

iii. Restricting purpose for accessing the site

2. Local Government Controls

a. Zoning Restrictions - The primary method of locally controlling land use is through the development of zoning ordinances and community master plans. A typical zoning program geographically divides an area into zones with different regulations written to apply to each zone. The regulations vary between zones but apply equally to all properties within a zone. Generic zoning categories include residential, commercial, and industrial.

b. Permit Programs - In establishing a permit program, the permitting agency determines specific conditions which must be met before a certain use or action is allowed on a property. In the particular case of an MEC-contaminated site, a permit program can be established that would require a user to conduct MEC clearance operations prior to excavation or intrusive activities.

1.3.1.2 *Engineering Controls*

These ICs would limit the public's access or exposure to the site. Depending on the MRS, the engineering controls may be used in conjunction with other controls. USACE only has the authority to implement engineering controls on property that is USACE-owned, which includes the property around Pat Mayse Lake. However, implementation of engineering controls on private property cannot be authorized by USACE and would have to be implemented by local city or county governments.

1. Fencing (Fencing is an often utilized option; however, no remedial alternatives for any of the MRSs at the Former Camp Maxey utilize fencing.)

2. Signage - Signs cautioning access to the site and warning of potential MEC at the surface and subsurface.

1.3.1.3 *Educational Controls*

The use of educational controls is a good strategy to manage and reduce residual risk because it makes people aware of and understand the hazards associated with the site so that they will take the necessary precautions to avoid exposure. The educational controls may be used in conjunction with other controls. Educational controls are the preferred and most utilized IC at the Former Camp Maxey. USACE has the authority to implement educational controls for all of Former Camp Maxey.

1. Formal educational programs
    a. Education for USACE and Texas Parks and Wildlife Department (TPWD) personnel as well as permitted hunters and campers concerning MEC safety, avoidance, and, response
2. Public notice
    a. Informational meetings regarding site risks for USACE and TPWD employees, residents, and recreational users
    b. Information meetings for surrounding public to discourage trespassing
    c. Education on the proper MEC reporting process
        i. 3Rs (Recognize, Retreat, and Report)

Examples of Mixed ICs:

- Signage and education programs
- Signage, education programs, and restricting access to a limited number of personnel and contractors
- Signage, education programs, restricting access to a limited number of personnel and contractors, and limit access purpose

1.4 Selection Criteria

The USACE and each stakeholder was evaluated for the five elements essential to the institutional analysis as identified in USACE EP *Ordnance and Explosives Response* (EP-1110-1-18):

- Jurisdiction of agency
- Authority exercised by the agency within its jurisdiction
- Mission of the agency
- Capability of the agency
- Desire of the agency to participate in the IC program

Summaries of the stakeholders' evaluations are provided in Tables 1 through 4. Agency acceptance and capability to participate in the IC program are described in Sections 1.5 and 1.6, respectively.

1.4.1 Jurisdiction of Agency

FUDS eligibility criteria (ER-200-3-1, Section 1-1.6.2 and Chapter 3) state that sites must meet the following requirements to be included in the FUDS funding program:

- The site must contain one or more releases or threatened releases of a similar response nature, treated as a discrete entity or consolidated grouping for response purposes.
- The release occurred prior to 17 October 1986.
- The property was transferred from the DoD's control prior to 17 October 1986.

If the FUDS eligible hazards or CERCLA hazardous substances, pollutants, and contaminants at a property do not pose a threat to public health, safety, or the environment, the eligible property will be closed out. Regulatory concurrence will be sought but is not required for FUDS close-out (ER-200-3-1, Section 4-7.3).

1.4.2 Authority Exercised by Agency

The second element in the institutional analysis is the degree of authority exercised by the agency. Several aspects of authority are evaluated (see Tables 1 through 4 below):

- Limits of the agency's authority
- Origin of the agency's authority
- Degree of control exercised by the agency
- Whether the agency has enforcement authority

1.4.3 Mission of Agency

The mission of the agency enables the determination of whether that agency can implement, maintain, monitor, or enforce ICs. Public safety and land use control aspects are often the primary mission elements necessary to ensure agency agreement in developing and carrying out an IC program. Each agency's broad mission and public safety and LUC functions are described in the tables below.

1.4.4 Capability of Agency

Even if an agency has the jurisdiction, authority, and mission to be involved in an institutional control program, if it does not have the capability, it cannot be an effective partner. In the case of local government agencies, the capabilities may be unique and are often a reflection of the desires of the local community. In some cases, the capabilities of a government or private agency can be augmented with additional funding in order to implement the additional requirements of the proposed institutional control program.

1.4.5 Desire of the Agency to Participate in the IC Program

The desire of a particular government or private agency to participate in an institutional control program is absolutely critical to its success. If local officials are convinced that participation in an institutional control program is in their best interests they are more apt to participate. In some cases, as with the capability of an agency, resources in the form of funding for the agency's implementation costs may overcome the initial hesitancy to become involved**.**

Table 1: USACE	
Origin of Institution	The USACE was established in 1775 by the Continental Congress and operated intermittently until it was reestablished as a separate entity in 1802. The USACE has operated continuously since that date, tasked with the design and construction of both military and civil projects.
Geographic Jurisdiction	The USACE is organized geographically into eight divisions in the United States and 41 subordinate districts throughout the United States, Asia, and Europe. The districts oversee project offices throughout the world. Divisions and districts are defined by watershed boundaries, not by states. Site restoration activities at the Former Camp Maxey are funded by the Fort Worth District and managed by the Huntsville Center.
Basis of Authority	In managing and executing the FUDS program, the USACE conducts projects under the DERP statute (10 U.S.C. 2701 et seq.), Executive Orders 12580 and 13016, and all applicable DoD and Army policies (e.g., *DoD Management Guidance for the DERP* [28 September 2001]).
Limits of Authority	The performance of environmental restoration activities for sites within the FUDS program at which a release of hazardous substance may have occurred must be implemented in accordance with the CERCLA (42 U.S.C. § 9601 et seq.) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP).
Degree of Control Exercised	The USACE has authority to propose potential ICs for implementation at FUDS properties. However, as ICs require a consensus among affected parties (e.g., TCEQ, TPWD, and private owners), the USACE has no authority over the implementation, maintenance, and enforcement of ICs on private property. USACE has limited authority over the implementation of ICs on land around Pat Mayse Lake owned by the federal government and managed by the State of Texas as a wildlife management area and state park. USACE may be able to implement public awareness actions for both public and private property.
Enforcement Authority	The USACE has no enforcement authority of ICs on privately owned property. Any legal mechanism must be implemented and enforced by state or local governments.
Sunset Provisions	Not applicable to this assessment
Mission of Agency	The USACE mission is divided into five broad areas encompassing water resources, environment, infrastructure, homeland security, and warfighting. The environmental mission states: "Focus USACE talents and energy to sustain the environment, to enable our worldwide missions and secure the future." This environmental mission is of primary importance to this project, as the USACE is tasked with addressing potential MEC and MC contamination on FUDS properties.
Public Safety Function	USACE's *Military Munitions Response Process* (EP 1110-1-18) states that the primary goal of the USACE MMRP is to take such actions as are necessary to ensure protection of human health, welfare, and the environment from the hazards associated with MEC and MC.
LUC Function	LUCs can be implemented with other federal entities, when requested.
Financial Capability	Defense Environmental Restoration Account funds are provided for the assessment and remediation of FUDS properties.
Desire to Participate in IC Program	The USACE would support the local government's implementation of ICs in the form of limited deed restrictions on public property, an educational program, and limited signage when such controls act to reduce the risk of explosive hazards associated with interaction with MEC. ICs are evaluated in the FS report, but some type of IC is likely to be selected as part of or the entire recommended response alternative for the MRSs at the Former Camp Maxey.
Constraints to Institutional	The USACE would be responsible for the IC program, but would not have the local authority to implement, maintain, and enforce the provisions of the ICs on private

Table 1: USACE	
Effectiveness	property. USACE has limited authority over ICs on land around Pat Mayse Lake owned by the federal government and managed by the State of Texas as a wildlife management area and state park. Any legal mechanism must be implemented and enforced by state or local governments.

Source: http://www.usace.army.mil/

Table 2: Texas Commission on Environmental Quality	
Origin of Institution	In 1993, the State of Texas legislature combined the Texas Water Commission (formed in 1962) and the Texas Air Control Board (formed in 1965) into the Texas Natural Resource Conservation Commission (TNRCC) to be the overall environmental agency for the state. The TNRCC was renamed the TCEQ in 2002.
Geographic Jurisdiction	The TCEQ has approximately 3,000 employees within 16 regional offices, with its principal headquarters located in Austin, Texas.
Basis of Authority	30 Texas Administrative Code (TAC) 350
Limits of Authority	The TCEQ enforces their authority within the provisions of the rules and regulations of the Texas Risk Reduction Program, 30 TAC 335, and other applicable regulations. TCEQ does have the authority to require institutional controls be placed on affected property depending on the specific circumstances as part of completing a response action.
Degree of Control Exercised	The TCEQ has the equivalent regulatory control to that of the USEPA but on the state level. The TCEQ has the lead regulatory role for the Former Camp Maxey investigation.
Enforcement Authority	The TCEQ's Office of Compliance and Enforcement can issue notices of violation and notices of enforcement for sites not in compliance with state regulations. The TCEQ can also issue orders to compel responsible parties to complete site restoration to include ICs.
Sunset Provisions	In 2011, a Sunset Advisory Commission voted to recommend that the agency be continued for 12 years (2023) under House Bill 2694. The current form and organization of the TCEQ are not expected to change in the future.
Mission of Agency	The TCEQ is the environmental agency for the state and strives to protect the state's human and natural resources consistent with sustainable economic development. Its stated mission is to "protect our state's human and natural resources consistent with sustainable economic development. Our goal is clean air, clean water, and the safe management of waste."
Public Safety Function	Other than its overall mission to protect human health and the environment, the TCEQ has no public safety function.
LUC Function	The TCEQ, in conjunction with the USEPA, would provide regulatory oversight of any LUCs implemented at the Former Camp Maxey
Financial Capability	The TCEQ has a $379 million operating budget for the 2014 fiscal year (including both baseline and contingency appropriations). Most of the budget is funded by program fees ($317 million).
Desire to Participate in IC Program	The TCEQ's degree of willingness to participate in the program will be contingent upon the findings of the RI and FS reports (extent of remaining MEC, location, proposed alternatives, etc.).
Constraints to Institutional Effectiveness	The TCEQ can enforce ICs, but would not be involved in the implementation or maintenance of the controls.

Source: http://www.tceq.state.tx.us/

Table 3: Lamar County	
Origin of Institution	Lamar County was formed by the Congress of the Republic of Texas in 1840.
Geographic Jurisdiction	Lamar County is located in northeast Texas adjacent to the Texas-Oklahoma border. The 2012 estimated population of Lamar County is 49,811. Lamar County has a total area of 933 square miles with the County Seat located in Paris, Texas.
Basis of Authority	The Texas Constitution (Article 9) allows for the creation and maintenance of counties and defines county government structure.
Limits of Authority	Texas grants narrow government authority to counties. Counties in Texas have limited regulatory (ordinance) authority and cannot pass ordinances (local laws with penalties for violations). Counties in Texas do not have zoning power (except for limited instances around some reservoirs, military establishments, historic sites and airports, and in large counties over "communication facility structures": visible antennas). However, counties can collect a small portion of property tax and spend it to provide residents with needed services or to employ the power of eminent domain. Counties do not have "home rule" authority; whatever powers they enjoy are specifically granted by the State. Lamar County does have the ability to record property restrictions established by landowners on their own property.
Degree of Control Exercised	Lamar County has very limited control over properties within its jurisdiction.
Enforcement Authority	Lamar County has limited to no enforcement authority related to ICs on property not owned and managed by the county.
Sunset Provisions	Not applicable to this assessment.
Mission of County	Texas county services, as defined by the state, include support of public safety and jails, effective regional transportation, support for the court system, reliable record-keeping for deeds and public documents, operating elections and certain environmental, health and human services.
Public Safety Function	Several Lamar County offices have public safety roles; however, there are no functions currently defined which would provide for the implementation of maintenance of ICs at the Former Camp Maxey.
LUC Function	There are no known aspects of the Lamar County government to support LUCs at the Former Camp Maxey.
Financial Capability	There are no known financial capabilities of the Lamar Count government able to support ICs at the Former Camp Maxey.
Desire to Participate in IC Program	The extent to which the Lamar County government is willing and able to support an IC program at the Former Camp Maxey is uncertain.
Constraints to Institutional Effectiveness	The ability of Lamar County to support ICs at the Former Camp Maxey is limited by statutory constraints related to Texas county government. Given the information available to date, it is unlikely that Lamar County could effectively contribute to a IC program.

Source: http://www.co.lamar.tx.us/

Table 3: Texas Parks and Wildlife Department	
Origin of Institution	In 1895 the legislature created the Fish and Oyster Commission to regulate fishing. The Game Department was added to the commission in 1907. The State Parks Board was created as a separate entity in 1923. In the 1930s, projects of the federal Civilian Conservation Corps added substantially to the state's parklands. In 1951, the term oyster was dropped from the wildlife agency's name, and in 1963, the State Parks Board and the Game and Fish Commission were merged to form the TPWD. The legislature placed authority for managing fish and wildlife resources in all Texas counties with the TPWD when it passed the Wildlife Conservation Act in 1983. Previously, commissioners courts had set game and fish laws in many counties, and other counties had veto power over department regulations.
Geographic Jurisdiction	The TPWD has authority for managing fish and wildlife in all Texas Counties. Currently, the agency has 11 internal divisions: Wildlife, Coastal Fisheries, Inland Fisheries, Law Enforcement, State Parks, Infrastructure, Legal, Administrative Resources, Communications, Human Resources and Information Technology. TPWD headquarters are located in Austin, TX.
Basis of Authority	Wildlife Conservation Act of 1983 and Texas Parks and Wildlife Code
Limits of Authority	WILDLIFE - The department may: (1) collect and enforce the payment of all taxes, licenses, fines, and forfeitures due to the department; (2) inspect all products required to be taxed by the laws relating to game, fish, oysters, and marine life and verify the weights and measures of the products; (3) examine on request all streams, lakes, and ponds for the purpose of stocking with fish best suited to the locations; (4) manage the propagation and distribution of fish in state fish hatcheries; and (5) manage the propagation and distribution of birds and game in state reservations. PARKS AND RECREATIONAL AREAS - Except as otherwise provided by law, the following are under the department's control and custody: (1) all recreational and natural areas designated as state parks; and (2) all historical sites under the jurisdiction of the department.
Degree of Control Exercised	TPWD has significant control over parks and wildlife throughout the State.
Enforcement Authority	The TPWD Law Enforcement Division provides a comprehensive statewide law enforcement program to protect Texas' wildlife, other natural resources, and the environment. The Division also provides safe boating and recreational water safety on public waters by ensuring compliance with applicable state laws and regulations. Texas Game Wardens are responsible for enforcement of the Parks and Wildlife Code, all TPWD regulations, the Texas Penal Code and selected statutes and regulations applicable to clean air and water, hazardous materials and human health. Wardens fulfill these responsibilities through educating the public about various laws and regulations, preventing violations by conducting high visibility patrols, and apprehending and arresting violators. Operation Game Thief provides citizens with a toll-free number to report poaching and other violations. The Law Enforcement Division employs about 500 wardens throughout the state and operates 27 field offices that sell licenses, register boats, and provide the public with local information across the state.
Sunset Provisions	The TPWD is subject to Chapter 325, Government Code (Texas Sunset Act). Unless continued in existence as provided by that chapter, the department is abolished 1 September 2021.
Mission of Agency	To manage and conserve the natural and cultural resources of Texas and to provide hunting, fishing and outdoor recreation opportunities for the use and enjoyment of present and future generations.
Public Safety Function	Texas Game Wardens have the same authority as a sheriff and are responsible for

Table 3: Texas Parks and Wildlife Department	
	enforcement of the Parks and Wildlife Code, all TPWD regulations, the Texas Penal Code and selected statutes and regulations applicable to clean air and water, hazardous materials and human health.
LUC Function	TPWD supports LUCs as they relate to their mission of managing the natural and cultural resources of Texas. If LUCs are implemented on property under the jurisdiction of the TPWD and support their objectives, it is likely the TPWD will agree to participate in the management of ICs at the Former Camp Maxey.
Financial Capability	The Fiscal Year 2013 combined budget for TPWD, which includes operating expenses, capital projects, grants and employee benefits, totals approximately $357.5 million. It is likely the TPWD will support ICs on property under their jurisdiction as part of normal operating procedures as long as costs are not prohibitive.
Desire to Participate in IC Program	The TPWD currently manages the Pat Mayes Wildlife Management Area in the western portion of the Former Camp Maxey. It is likely that they will support any ICs in the WMA that coincide with their mission to manage and conserve natural and cultural resources of Texas.
Constraints to Institutional Effectiveness	The ability of TPWD to support ICs at the Former Camp Maxey is likely limited by additional labor and expenses required for the establishment and enforcement of ICs.

Source: http://www.tpwd.state.tx.us/

1.5 Acceptance of Joint Responsibility

This section describes each agency's desire to participate in an IC program at the Former Camp Maxey. The USACE supports the implementation of ICs to minimize the explosive safety risk associated with MEC within the site. The TCEQ generally support IC programs at sites at which the selected controls reduce the risks to the public and can be monitored and enforced. Any IC program developed during the FS must meet these requirements for regulatory acceptance. The TPWD personnel and recreational users of the wildlife management area and state park (and the landowner, USACE) would be most directly affected by the implementation and enforcement of ICs. Therefore, the USACE must ensure direct coordination and joint development of the IC program with the TPWD, as well as TCEQ, so that all parties reach a consensus for responsibility of the program.

1.6 Technical Capability

All governmental entities engaged with the Former Camp Maxey have the necessary technical and financial capability to support an IC program. TPWD personnel would likely have a limited technical capability for implementing the IC program, other than adherence to potential controls, such as site avoidance and education.

1.7 Intergovernmental Relationships

The degree to which governmental agencies are willing to partner together can impact the degree of success of an IC program. USACE and TCEQ representatives have been willing in the past to coordinate efforts for site investigation activities at the Former Camp Maxey, and both entities would likely be open to partnering for the development and implementation of ICs. It is anticipated that the TPWD is willing to participate in an IC program so long as its main mission at the Pat Mayse Wildlife Management Area and Pat Mayse State Park is not impacted. The TCEQ supports the implementation of IC programs, so long as they protect human health and the environment and are developed, monitored, and enforced according to the requirements of the program.

1.8 Stability

Each governmental entity identified as a stakeholder at the Former Camp Maxey has sufficient administrative, technical, and financial stability necessary to support an IC program. There are no plans for these entities to close under sunset provisions in the future.

1.9 Funding Sources Recommended for Detailed Analysis

The USACE is funded annually by the federal government and should have sufficient funds to support an IC program. Likewise, the TCEQ and TPWD are funded annually by the State of Texas and has sufficient funds to support the program. The ICs most likely to be implemented at the site (signage, education, easements, and permitting) may require limited initial capital investments, as well as limited monitoring and enforcement expenditures, but these costs are likely to be supported via integration into existing activities. For example, TPWD personnel already enforce such restrictions by preventing unauthorized visitors and trespassers from entering the property. Therefore, limited additional funding may be required to maintain or augment controls. Any private property owners impacted have less financial capability than these agencies and may be most directly affected by implementation of ICs.

1.10 Recommendations

The analysis provided above has determined that each agency can and will likely support an IC program that is developed consistent with each stakeholder's site-specific requirements. Therefore, pursuit of an IC program is recommended via development of IC alternatives in the FS phase. As this institutional analysis has been conducted separate of the development of the specific ICs that could be implemented at the site, the degree to which each agency can and will support ICs will be refined in the FS.

1.11 References

DoD, 2000. *Interim Policy on LUCs Associated with Environmental Restoration Activities*.

TCEQ, 1999. *Texas Risk Reduction Program*. 30 TAC 350.

TCEQ, 2010. *Institutional Controls under TRRP*. RG-366/TRRP-16

USACE, 2004. *Environmental Quality - Formerly Used Defense Sites (FUDS) Program Policy*. ER-200-3-1. Regulation No. 200-3-1.

USACE, 2000. *Establishing and Maintaining Institutional Controls for Ordnance and Explosives (OE) Projects*. EP-1110-1-24.

USACE, 2000. *Ordnance and Explosives Response*. EP 1110-1-18.

USEPA, 1980. *Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund)*. 42 U.S.C. s/s 9601 et seq.

APPENDIX N: QUALITY DOCUMENTATION AND OTHER FIELD DATA IN ELECTRONIC FORMAT
FORMER CAMP MAXEY
Paris, Texas

This appendix contains quality documentation and other field data in electronic format. Contents of this appendix include:

1. UXOQCS Daily Inspection Reports

2. UXOQCS Weekly Inspection Reports

3. Quality Control Inspection Reports documenting inspection of specific inspection of brush cutting and anomaly resolution in grids.

4. Equipment Function Tests for GPS and magnetometers (when used for reacquisition and resolution of anomalies).

5. Documentation of MDAS certification and transfer for recycling

6. Field Logs – During the majority of the effort personnel operated as one team, however during some phases personnel were reorganized into two teams. Activity logs for both teams as well as the one associated with MC sampling are included.

7. Quality documentation addressing corrective action taken and root cause analysis of quality concerns.

Additional Quality Control documentation is included in the Geophysical database included in Appendix B; in the MC Investigation Data in Appendix C; and in the GIS Database in Appendix H.