

FINAL

DECISION DOCUMENT

**MAIN ARTILLERY RANGE
AND IMPACT AREA/BUFFER ZONE
MUNITIONS RESPONSE SITE 7 (MRS 7)**

**Former Camp Swift
Bastrop County, Texas**

FUDS Project No. K06TX030407

**U.S. Army Corps of Engineers
Regional Planning and Environmental Center
Fort Worth, TX 76102**



August 2022



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EXECUTIVE SUMMARY

The United States (U.S.) Army Corps of Engineers (USACE) has prepared this Final Decision Document (DD) to describe the remedy selected for the Munitions Response Site (MRS) 7, Main Artillery Range and Impact Area/Buffer Zone, within the former Camp Swift Range Complex located in Bastrop County, Texas. Camp Swift is a 29,280-acre Formerly Used Defense Site (FUDS) used during World War II (WWII) for artillery and maneuver training. MRS 7 is a 146-acre portion of Camp Swift. Other MRSs at Camp Swift will be addressed in separate DDs. The project number is K06TX030407 in the Formerly Used Defense Sites Management Information System.

MRS 7 is in the eastern portion of the former Camp Swift, approximately 4¹/₄ miles west southwest of Paige, Texas. The land comprising MRS 7 is privately owned and is used for residential, recreational, and agricultural activities. Land use in the area is light agriculture (hay meadows and turf farms), light ranching, and acreage-style residential development. The area is sparsely populated with about three dozen homes within 1 mile of MRS 7. Current land use is expected to remain the same, with possible residential acreage development in the future.

This work is performed under the Defense Environmental Restoration Program (DERP) – FUDS in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S. Code §9601, et seq., as amended by the Superfund Amendments and Reauthorization Act of 1986, and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 Code of Federal Regulations Part 300, et seq., as amended. USACE acts as the lead agency on behalf of the U.S. Department of Defense (DoD) in the execution and administration of the FUDS program in accordance with CERCLA, the NCP, and the DERP statute. The Texas Commission on Environmental Quality (TCEQ) is the lead regulatory agency.

A Remedial Investigation (RI) completed in 2015 documented residual munitions remaining in the subsurface at Camp Swift, consistent with antitank maneuver training performed during DoD military operations during WWII. Munitions and Explosives of Concern (MEC) confirmed at Camp Swift consist of mortars, projectiles, rockets, and practice antitank mines to a depth of 20-inches (in) below ground surface (bgs). Only munitions debris (MD) were documented at MRS 7 during the RI. The confirmed presence of MEC at Camp Swift and the confirmation of MD at MRS 7 indicate a potential presence of MEC at MRS 7 in areas that have not been previously investigated or cleared to the depth of the Selected Remedy. The RI concluded the historical presence of MEC represented an unacceptable potential hazard to current and future site residents, workers, and users.

Investigations by USACE included soil sampling conducted at Camp Swift to determine whether munitions constituents (MC) resulting from past DoD operations were present in soil at concentrations that pose unacceptable risk to human health and the environment. The results of the sample analyses were screened against the TCEQ Residential Tier 1 protective concentration levels (PCLs) Total Soil Combined for both metals and explosives. Additionally, the results were screened against the TCEQ Residential Tier 1 PCLs Soil to Groundwater criteria to determine if there could be any soil leaching to groundwater based on the soil analytical results. Any MC measured at concentrations greater than the preliminary screening values would be considered a chemical of potential concern (COPC).

There were no detections of explosives in the soil samples. Additionally, none of the maximum detected concentrations of the target metals exceeded their respective residential TCEQ Tier 1 PCLs (both for residential soil and soil to groundwater) and were below the Texas-Specific Median Background



Concentrations and the calculated site-specific background threshold value. These results showed there were no COPCs associated with MEC/MC at MRS 7. Therefore, there are no complete exposure pathways, and the baseline human health risk assessment indicates that MC-related contamination does not pose a risk to current or future human receptors exposed to site soil, surface water, or groundwater from past DoD activities (TtEC, 2015).

A Feasibility Study completed in 2015 developed and assessed remedial alternatives to address the risk posed by MEC at MRS 7. The remedial alternatives were summarized in a Proposed Plan presented to the public in 2015 for comment. After considering public comments and input from other stakeholders and the TCEQ, USACE identified the preferred remedial alternative for MRS 7 as Surface and Subsurface Removal of MEC to a depth of 3 feet (ft) using Digital Electromagnetic Induction systems in conjunction with Advanced Geophysical Classification with Land Use Controls (LUCs). This remedy provides the maximum protection to site users including site workers, residents, farmers, ranchers, and the public because it will ensure removal of surface and subsurface munitions hazards from all accessible areas of the site to a depth of at least 3 ft, which is below the maximum depth (20-in bgs) that have been previously encountered. Residual risk in areas of denied right of entry or inaccessibility will be addressed by LUCs consisting of a public outreach and education and 5-year reviews. The 2021 total present value cost of this remedy is \$2,572,000.



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ATTACHMENTS

- Attachment 1: Texas Commission on Environmental Quality Concurrence of Decision Document
- Attachment 2: Announcement of Public Notice
- Attachment 3: Transcript of Public Meeting for the Proposed Plan
- Attachment 4: Texas Commission on Environmental Quality Comments and USACE Responses on the Proposed Plan



LIST OF ACRONYMS AND ABBREVIATIONS

3Rs	Recognize, Retreat, and Report
5YR	5-year reviews
AGC	advanced geophysical classification
ARAR	applicable or relevant and appropriate requirement
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
COPC	chemical of potential concern
CSM	conceptual site model
DD	Decision Document
DERP	Defense Environmental Restoration Program
DGM	digital geophysical mapping
DoD	United States Department of Defense
EE/CA	Engineering Evaluation/Cost Analysis
EMI	Digital Electromagnetic Induction
ER	Engineer Regulation
FS	Feasibility Study
ft	feet
FUDS	Formerly Used Defense Site
FUDSMIS	Formerly Used Defense Sites Management Information System
in	inch
IVS	instrument verification strip
LUC	land use control
MC	munitions constituents
MD	munitions debris
MEC	munitions and explosives of concern
mm	millimeter
MPC	measurement performance criteria
MRS	munitions response site
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
O&M	operation and maintenance
PCL	protective concentration level
RAO	remedial action objective



RCRA	Resource Conservation and Recovery Act
RI	remedial investigation
ROE	right of entry
SSL	soil screening level
TCEQ	Texas Commission on Environmental Quality
TOI	targets of interest
TPV	total present value
U.S.	United States
USACE	United States Army Corps of Engineers
USC	United States Code
USEPA	United States Environmental Protection Agency
UU/UE	unlimited use and unrestricted exposure
UXO	unexploded ordnance
WWII	World War II



PART 1: DECLARATION

1.1 PROJECT NAME AND LOCATION

This Final Decision Document (DD) is for Munitions Response Site (MRS) 7: Main Artillery Range and Impact Area/Buffer Zone. MRS 7 is located in the east portion of the former Camp Swift Range Complex and approximately 4¹/₂ miles southwest of Paige, Texas in Bastrop County southeast Texas (Appendix A - Figure 1.1-1). The project number is K06TX030407 in the Formerly Used Defense Sites Management Information System (FUDSMIS).

During the history of this project, the site has gone through multiple nomenclatures for each investigated area in the course of each investigation. Generally, these re-designations represented an increase of focus on better-defined investigational areas as greater data was obtained. During the Remedial Investigation/Feasibility Study (RI/FS) (TtEC, 2015) MRS 7 was part of a larger MRS called MRS East. MRS East was subdivided into smaller MRSs, one of which was identified as MRS 2c which is now recognized as MRS 7. MRSs at Camp Swift were delineated and renamed as recommended in the RI/FS to create more manageable geographic groupings.

1.2 STATEMENT OF BASIS AND PURPOSE

This DD presents the Selected Remedy for MRS 7: Main Artillery Range and Impact Area/Buffer Zone, at the former Camp Swift Range Complex in Bastrop County, Texas. Investigations by the United States (U.S.) Army Corps of Engineers (USACE) documented the presence of munitions and explosives of concern (MEC) including mortars, projectiles, rockets, and practice antitank mines associated with historic training activities by the U.S. Army at Camp Swift during World War II (WWII). The potential presence of MEC at MRS 7 creates an unacceptable risk of injury to residents and users at the site. The Selected Remedy is protective of human health and the environment, complies with federal and state requirements that are applicable or relevant and appropriate to the Remedial Action, is cost-effective, and utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable.

The Selected Remedy was chosen in accordance with the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S. Code (USC) §9601, *et seq.* as amended by the Superfund Amendments and Reauthorization Act of 1986, and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 Code of Federal Regulations (CFR) Part 300, *et seq.* as amended. The DD follows the requirements set forth in Engineer Regulation (ER) 200-3-1, *Formerly Used Defense Site Program Policy* (USACE, 2004) and is consistent with the U.S. Environmental Protection Agency (USEPA) guidance provided in *A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents*, EPA 540-R-98-031 (USEPA, 1999). This decision is based on the Administrative Record file for this site. The State of Texas Commission on Environmental Quality (TCEQ) has formally concurred with the findings and recommendations of the RI/FS (TtEC, 2015) and the Proposed Plan (USACE, 2015). TCEQ's concurrence on the Selected Remedy for this MRS and this DD is attached as Attachment 1.

1.3 ASSESSMENT OF SITE

Previous USACE investigations have documented the presence of MEC consisting of mortars, projectiles, rockets, and practice antitank mines from the surface to a depth of 20 inches (in) below ground surface (bgs) at Camp Swift. Only non-hazardous munitions debris (MD) consisting of rocket fragments were found



at MRS 7. All MEC encountered during prior investigations were destroyed and removed from Camp Swift. Based on the presence of MD at MRS 7 it is possible that MEC remains in areas that have not been previously investigated or cleared to the depth of the Selected Remedy and presents an unacceptable risk of injury to site users.

Investigations by USACE included soil sampling conducted at Camp Swift to determine whether munitions constituents (MC) were present in soil at concentrations that pose unacceptable risk to human health and the environment. Samples were analyzed for explosives and targeted metals associated with the munitions used at Camp Swift (aluminum, antimony, arsenic, barium, chromium, cobalt, copper, lead, manganese, mercury, molybdenum, nickel, vanadium, and zinc). The results of the sample analyses were screened against the TCEQ Residential Tier 1 protective concentration levels (PCLs) Total Soil Combined for both metals and explosives. Additionally, the results were screened against the TCEQ Residential Tier 1 PCLs Soil to Groundwater criteria to determine if there could be any soil leaching to groundwater based on the soil analytical results. Any MC measured at concentrations greater than the preliminary screening values would be considered a chemical of potential concern (COPC).

There were no detections of explosives in the soil samples. Additionally, none of the maximum detected concentrations of the target metals exceeded their respective residential TCEQ Tier 1 PCLs (both for residential soil and soil to groundwater) and were below the Texas-Specific Median Background Concentrations and the calculated site-specific background threshold value. These results showed there were no COPCs associated with MEC/MC at MRS 7. Therefore, there are no complete exposure pathways, and the baseline human health risk assessment indicates that MC-related contamination does not pose a risk to current or future human receptors exposed to site soil, surface water, or groundwater from past U.S. Department of Defense (DoD) activities (TtEC, 2015).

While ecological receptors are not considered in evaluating MEC hazards, their presence must be considered in planning remedial actions at the site. A screening level risk assessment was conducted based on the results of the soil sampling. The ecological soil screening levels (SSLs) were based on the USEPA Eco-SSLs except for the following, which are from Efroymsen et al. 1997: antimony, barium, mercury, molybdenum and vanadium ecological SSLs for plants and arsenic and mercury ecological SSLs for soil invertebrates. No explosives were detected in the soil samples. Of the target metals sampled, two metals (chromium and vanadium) had concentrations over the lowest ecological screening values, but both results were below the Texas-Specific Median Background Concentrations and were considered to be present at naturally occurring levels. Based on the screening level ecological risk assessment, there are no adverse effects to ecological receptors from explosives compounds or metals (TtEC, 2015).

The response action selected in this DD is necessary to protect human health from actual or threatened releases of hazardous substances into the environment, specifically MEC consisting of mortars, projectiles, rockets, and practice antitank mines present in site soil to a depth of 20-in bgs.

1.4 DESCRIPTION OF SELECTED REMEDY

The cleanup strategy for MRS 7 is to remove existing MEC hazards, thus minimizing the risk of injury to site users. The Selected Remedy for MRS 7 is Alternative 5D: Surface and Subsurface Removal of MEC to 3-feet (ft) bgs using Digital Electromagnetic Induction (EMI) Systems in conjunction with Advanced Geophysical Classification (AGC) with Land Use Controls (LUCs). The depth of 3 ft is greater than the 20-in bgs confirmed depth of MD and will improve confidence that all MEC have been removed. Where bedrock is found to be shallower than 3-ft bgs, the maximum depth of remediation will be to the top of bedrock. MEC removed from MRS 7 will be treated via controlled demolition, satisfying the statutory



preference [42 USC §9621(b)(1)] for remedies that include treatment as a principal element.

The specific components of the Selected Remedy are:

- Obtaining right of entry (ROE) from the landowner(s) in MRS 7.
- Systematically survey the surface of the site using metal detectors to identify and remove MEC (if present) and other metallic items on the ground surface, vegetation trimming to allow access to geophysical equipment and crews, and land surveys to divide MRS 7 into grids for efficient management of field activities.
- Digital geophysical mapping (DGM) with advanced sensors, analysis of geophysical data and classification of geophysical targets, and removal of targets of interest (TOI) that could be subsurface MEC and those whose source cannot be determined.
- Detonation of MEC, if found, either in-place or using consolidated shots.
- Proper disposal of non-hazardous MD.
- After clearing the target, the excavation will be swept with a geophysical sensor to ensure no other anomalies are present below the initial target.
- Site restoration following MEC removal activities.
- Implementation of LUCs (consisting of a public outreach and education program to provide the public with information about the potential MEC hazards). Included in public outreach are the 3Rs (Recognize, Retreat, and Report) Explosives Safety Education Program which can be found at <https://www.3Rs.mil>.
- Submittal of a post remedy assessment documenting the results of the Remedial Action including an assessment of the completeness of site removal activities.

This Selected Remedy effectively removes the accessible MEC hazards present at MRS 7 by removing the source material (MEC) to a depth of 3-ft bgs in accessible areas, thereby reducing the risk of the direct contact threat associated with subsurface MEC to an acceptable level. In the event of denied ROE or inaccessibility (obstructions) are encountered during the implementation of the remedy, the remedy will not be applied to those areas. In that event, educating the public through LUCs will limit inadvertent exposure to MEC potentially remaining in those areas. Instances of denied ROE will be documented in accordance with USACE policy.

1.5 STATUTORY DETERMINATIONS

Based on the information currently available, the Selected Remedy for MRS 7: (a) is protective of human health, safety, and the environment; (b) complies with federal and state requirements that are applicable or relevant and appropriate to the Remedial Action; (c) is cost-effective when evaluated against the nine criteria described in the NCP, 40 CFR Section 300.430(e)(9)(iii); and (d) utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable. This Selected Remedy provides the best balance of tradeoffs when compared to the other evaluated alternatives with respect to the balancing and modifying criteria specific in the NCP. The Selected Remedy is also acceptable to the State regulator.

Section 121(d) of CERCLA [42 USC §9621(d)] states that CERCLA remedial actions must comply with, or have a waiver for, any applicable or relevant and appropriate requirement (ARAR), which include regulations, standards, criteria, or limitations promulgated under federal environmental, or more stringent



state environmental or state facility siting laws. ARARs that are relevant to this Remedial Action include the Endangered Species Act due to the presence of the endangered Houston toad (*Bufo houstonensis*) in Bastrop County, and 40 CFR 264 Subpart X relating to residues from explosive disposal operations that may occur during implementation of the remedy. See Section 2.9.2 for more detail.

This remedy satisfies the statutory preference for treatment as a principal element of the remedy (i.e., it reduces volume of hazardous substances as a principal element through treatment).

There are inaccessible areas beneath structures and potentially areas where ROE is denied which will prevent the implementation of the remedy in those areas. Consequently, hazardous substances, pollutants, or contaminants may remain onsite above levels that allow for unlimited use and unrestricted exposure (UU/UE). Therefore, 5-year reviews (5YR) will be required for this Remedial Action. The purpose of 5YR is to document whether the remedy remains protective of human health and the environment. Instances of denied ROE will be formally documented in accordance with USACE policy.

1.6 DATA CERTIFICATION CHECKLIST

The Decision Summary section (Part 2) of this DD includes the information below. Additional information can be found in the Administrative Record file.

- A summary of the characterization of nature and extent of MEC hazards at MRS 7.
- Current and reasonably anticipated future land use assumptions for the site (Section 2.6).
- Key factors that led to the selection of a combination of removal and restoration and LUCs (public outreach and education) for MRS 7.
- Estimated costs and time to implement the Selected Remedy and the included 5YR costs.
- How source materials constituting principal threats will be addressed.

Information on chemicals of concern and their respective concentrations, associated baseline risk, and established cleanup levels is not included because MC risks are not present at MRS 7. MEC present at the site has no impact on groundwater at the site; therefore, current groundwater uses will continue. Additional information can be found in the Administrative Record file for this site.



1.7 AUTHORIZING SIGNATURE

This DD presents the Selected Remedy for MRS 7, Main Artillery Range and Impact Area/Buffer Zone, former Camp Swift, Bastrop County, Texas. The USACE is the lead executing agency under the Defense Environmental Restoration Program (DERP) at the Camp Swift Formerly Used Defense Sites (FUDS) and has developed this DD consistent with CERCLA, as amended and the NCP.

This DD will be incorporated into the larger Administrative Record file for the former Camp Swift FUDS, which is available for public view at Bastrop Public Library, 1100 Church Street, Bastrop, Texas 78602. This DD, presenting a Selected Remedy with a total present value (TPV) cost estimate of \$2,572,000 is approved by the undersigned, pursuant to CEMP-CE Memorandum, July 8, 2022, subject: *Redelegation of Assignment of Mission Execution Functions Associated with Department of Defense Lead Agent Responsibilities for the Formerly Used Defense Sites Program*, and to ER 200-3-1, *FUDS Program Policy* (2004), and Memorandum CEMP (1200C PERM) February 9, 2017, subject: *Interim Guidance Document (IGD) for the Formerly Used Defense Sites (FUDS) Decision Document (DD) Staffing and Approval*.

APPROVED:

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SES Director, Regional Business



PART 2: DECISION SUMMARY

2.1 NAME, LOCATION, AND BRIEF DESCRIPTION

The subject property of this DD is MRS 7, Main Artillery Range and Impact Area/Buffer Zone, at the former Camp Swift in Bastrop County, Texas.

Camp Swift Range Complex Munitions Response Site is a 29,280-acre FUDS used during WWII for artillery and maneuver training. FUDS military munitions projects are managed and funded through the Department of Defense's Environmental Restoration Program – Formerly Used Defense Sites (DERP-FUDS). MRS 7 is identified as project number K06TX030407 in the FUDSMIS. A FUDS is a site that was owned, leased, or otherwise possessed by the U.S. during a period of DoD jurisdiction, and which was transferred from DoD control prior to October 17, 1986. Military operations on a FUDS may have resulted in contamination being left behind after the property was transferred from DoD control.

The DoD has designated the USACE as the lead agency for FUDS CERCLA actions. The TCEQ is the lead regulatory agency.

Camp Swift includes a range complex comprising overlapping small arms ranges, grenade courts, a mortar range, artillery impact areas, training maneuver areas, and a demolition area. Camp Swift is bordered to the northeast by Federal Highway 290, to the southeast by State Highway 21, and to the west by State Highway 95. MRS 7 is a 146-acre portion of Camp Swift used as the main artillery range and impact area/buffer zone during WWII (Appendix A - Figure 2.1–1).

2.2 SITE HISTORY AND ENFORCEMENT ACTIVITIES

2.2.1 Site History

The U.S. Army engaged in infantry and artillery training at Camp Swift during WWII. MRS 7 is a portion of the main artillery range and impact area buffer zone. In 2007 an Engineering Evaluation/Cost Analysis (EE/CA) (Parsons, 2007) was performed at Camp Swift and documented the presence of munitions at several locations. Included in these locations was an area identified as MRS East, which encompasses MRS 7. In addition, the EE/CA documented landowner(s) finds of expended and unexpended antitank mines in various places at the 29,280-acre camp.

Based on these finds, a RI was performed to ascertain the nature (type and quantity) and extent (horizontal distribution and depth below surface) of munitions at former Camp Swift. The RI/FS (TtEC, 2015) documented the presence of MEC in the form of 4.2-in and 81 millimeter (mm) mortars; 75mm and 105mm projectiles; 2.36-in rockets; and practice antitank mines at other MRSs investigated during the RI. All MEC encountered during the investigation were destroyed and removed from Camp Swift. The RI also documented the presence of MD consisting of expended 4.2-in, 60mm, and 81mm mortars; various mortar shell fragments; expended 37mm, 75mm, and 105mm projectiles; expended 2.36-in rockets; rifle grenades; practice antitank mines; fuzes; and multiple unidentifiable projectile fragments. Although no MEC were discovered in MRS 7 there was MD consisting of rocket fragments found at MRS 7. These MD are indicative of the MEC that could be present at MRS 7. During the previous investigations this area was referred to as MRS East and MRS 2c but for program management purposes this area was delineated as MRS 7 and is the subject of this DD.



2.2.2 CERCLA Enforcement Activities

To date, there have been no CERCLA-related enforcement activities at the project site.

2.3 COMMUNITY PARTICIPATION

Community participation in the process leading to this DD falls into three categories: 1) dissemination of information to the community; 2) stakeholder involvement in the technical project planning process; and 3) formal public comment period. These three areas are described in more detail below.

The following activities were conducted to disseminate information; to seek public involvement, and solicit public comment from the community in the vicinity of Camp Swift:

- A copy of the Administrative Record file was established at Bastrop County Library, which contains past investigation reports, the RI/FS (TtEC, 2015), and the *Proposed Plan for Former Camp Swift* (USACE, 2015). A newspaper announcement was published on October 11, 2015, in the *Austin American Statesman* (Attachment 2) informing the public of the availability of the Administrative Record.
- Based on the findings and recommendations of the RI/FS, a Proposed Plan was prepared for public review and comment. The October 11, 2015, newspaper announcement in the *Austin American Statesman* (Attachment 2) solicited public comment on the *Proposed Plan for Former Camp Swift*. The public comment period was open from October 16 to November 16, 2015. No comments were received from the public.
- A public meeting was held at the Lost Pines Scout Reservation: Lindsay Lodge on October 29, 2015. Eight people attended the October 29, 2015, public meeting, including representatives of the USACE, USACE's contractor, and the TCEQ. No members of the public attended.
- The meeting was transcribed by a court recorder, and a copy of the transcript is included in the Meeting Summary, which is part of the Administrative Record at the Bastrop County Library, Bastrop, Texas. The transcript is also attached to this document as Attachment 3.

2.4 SCOPE AND ROLE OF RESPONSE ACTION

The Response Action will include coordination with the landowner(s) and obtaining ROE from individual landowners, trimming/cutting vegetation to allow access to the field crews and equipment, surface sweep of MEC and other metallic items, and geophysical surveys to map locations where MEC could be buried. MEC removal teams will dig at locations where MEC could be located to recover the source of the targets, destroy any MEC recovered and dispose of MD, and restore the site as required. The Response Action will implement LUCs to mitigate risk due to MEC that may remain in areas of denied ROE or inaccessibility to the MEC removal teams by providing information to educate the public on the hazards associated with MEC. LUCs will be required indefinitely to manage risks from residual MEC. Actions during this phase may involve monitoring site conditions, implementing and managing LUCs and performing 5YR.

MEC consisting of mortars, projectiles, rockets, and practice antitank mines present a risk of injury to site users who inadvertently or intentionally interact with them. Implementation of this Response Action will result in the removal of MEC from accessible areas and areas with ROE within MRS 7, thus eliminating the risk to current and future site users in cleared areas. A public awareness program utilizing the 3R message; Recognize, Retreat, and Report will be implemented to inform site users and the community of historic military use at MRS 7 and actions to be taken should they encounter MEC. Section 2.9.1 provides



a more detailed discussion of LUCs and the 3Rs.

The Selected Remedy was chosen in accordance with CERCLA, 42 USC §9601, et seq., as amended by the Superfund Amendments and Reauthorization Act of 1986, and, to the extent practicable, the NCP, 40 CFR, Part 300, et seq., as amended.

A Selected Remedy has been approved for MRS 7 that is determined to be protective of human health and the environment, minimizes explosive safety hazards, and satisfies the statutory requirements of 42 USC §9621(b) with regards to the DoD's use of MRS 7. USACE will develop a Remedial Design/Response Action Plan that details how the Selected Remedy will be conducted. Following the completion of the Remedial Design/Response Action Plan, the Remedial Action will be implemented.

2.5 PROJECT SITE CHARACTERISTICS

2.5.1 Site Overview

Site characteristics are summarized in the conceptual site model (CSM). The CSM provides the basis for developing the risk assessment and response action for the site (Appendix A - Figure 2.5–1).

MRS 7 is located in the eastern portion of the former Camp Swift, approximately 4¹/₂ miles southwest of Paige, Texas. MRS 7 comprises of 146-acres including an approximately 6-acre non-contiguous parcel about 700 ft east of the main body of MRS 7 (Appendix A - Figure 2.1–1). The area consists of Post Oak Savannah situated in flat to gently rolling terrain. Surface water drainage is to the south southwest. According to the databases for National Historic Landmarks, National Heritage Areas, National Register of Historic Places, and Texas Archeological Sites, there are no listed archaeological or cultural resources within MRS 7.

Recent review of aerial photography of the site indicates there are five residential structures, several outbuildings, and two trailers/mobile homes on MRS 7. The site is crossed by dirt roads and trails. Large portions of the site are undeveloped.

The site is readily accessible from area roads. Most areas of the site are accessible to field crews and equipment. The RI sampling strategy at MRS 7 was designed to map the horizontal and vertical extent of MEC and MD contamination in soil at the site, and to determine if any previously unknown munitions could be present. DGM was performed to provide a permanent record of geolocated measurements and an objective criterion for identifying geophysical anomalies. A representative portion of locations with DGM measurements above the site-specific threshold were revisited and intrusively investigated to determine whether the anomalies were MEC-related.

The horizontal extent MD finds at MRS 7 reported in the RI is presented in Appendix A - Figure 2.5–2. During the RI, MEC consisting of one 75mm projectile, one 105mm projectile, two M1B1 practice antitank mines, two 4.2 in mortars, one 2.36 in rocket, and one unidentified artillery projectile were found in site soil at depths of up to 20 in at other nearby MRSs. MEC were not observed at MRS 7 during the RI. However, MD consisting of one rocket fragment was found at MRS 7. The confirmation of MD indicates that there is potential for the presence of MEC in uninvestigated areas. The discovery of MD is consistent with the documented usage of this area as an artillery range and impact area with a buffer zone.

It is unlikely that natural processes will transport MEC at MRS 7. Frost depth for Bastrop County is up to 5 in, shallower than the typical 20-in depth that munitions have been encountered and various penetration



depths of surface-launched artillery and mortars, thus eliminating frost heave as a mechanism to force MEC to the surface.

Site users engaged in shallow subsurface activities (construction, utility work, building fences and similar activities) may encounter subsurface MEC. This presents a complete exposure pathway in the CSM (Appendix A - Figure 2.5–1). Given the large explosive weights of the MEC that could be encountered at MRS 7, these users may be injured by this exposure and the risk of death from an encounter is considered high.

Soil sampling was conducted to determine if MC including explosives and targeted metals were present at concentrations that pose unacceptable risk to human health and the environment. The results of the sample analyses were compared to preliminary screening values based on former Camp Swift site-specific background soil concentrations and selected applicable human health and ecological risk-based screening levels. Any MC measured at concentrations greater than the preliminary screening values would be considered a COPC.

No COPCs were detected at MRS 7 during the RI. Based on this finding, MC do not present a risk to site users. There are no complete exposure pathways, and the baseline risk assessment indicates that MC-related contamination does not pose a risk to current or future receptors exposed to site soil, surface water, or groundwater from past DoD activities. More detailed information concerning the MC sampling and analysis conducted at MRS 7 are presented in the RI/FS (TtEC, 2015) and included in Sections 1.3 and 2.7 of this DD.

2.6 CURRENT AND POTENTIAL FUTURE SITE AND RESOURCE USES

Land use in the vicinity of MRS 7 is small scale ranching, light agriculture (hay meadows and turf farms), and acreage-style residential development. There are five residential structures on MRS 7. The area around the MRS is sparsely populated. There is a turf farm approximately 1.5 miles north of MRS 7. A small subdivision is adjacent to the western edge of MRS 7, otherwise there are less than three dozen houses within 1 mile of the site. Future land use is expected to remain the same, with potential small-scale residential acreage development and associated buried or low-elevation infrastructure (septic systems, sanitary sewer lines, water mains, fire hydrant lines, roadbeds, etc.) continuing.

MRS 7 is a mostly uninhabited mix of open grassland and light to moderately wooded areas (Post Oak Savannah). One irrigation well is located approximately 0.6 miles north of MRS 7. According to the TCEQ database of water districts and well locations (TCEQ, 2021) there is not a water district that covers this area but there are several wells in the vicinity of MRS 7. Therefore, it is suspected that residents in the vicinity obtain their water from their own wells. Since the RI did not find any COPCs (Section 2.7) at MRS 7 there is no risk to surface water or groundwater users in the area.

2.7 SUMMARY OF PROJECT SITE RISKS

The RI documented MEC consisting of mortars, projectiles, rockets, and practice antitank mines and associated MD to a depth of 20 in at Camp Swift. The confirmed presence of MEC at Camp Swift and the confirmation of MD consisting of rocket fragments found at MRS 7 indicate a potential presence of MEC in MRS 7 in areas that have not been previously investigated or cleared to the depth of the Selected Remedy. The MD discovered in MRS 7 is indicative of the types of MEC that may still be present. If present, MEC presents an unacceptable risk of injury to site users as described in the CSM. The Selected Remedy will eliminate this risk by removing the MEC from the site.



Investigations by USACE included soil sampling; samples were analyzed for explosives and targeted metals associated with the munitions used at Camp Swift (aluminum, antimony, arsenic, barium, chromium, cobalt, copper, lead, manganese, mercury, molybdenum, nickel, vanadium, and zinc). The results of the sample analyses were screened against the TCEQ Residential Tier 1 PCLs Total Soil Combined for both metals and explosives. Additionally, the results were screened against the TCEQ Residential Tier 1 PCLs Soil to Groundwater criteria to determine if there could be any soil leaching to groundwater based on the soil analytical results. Any MC measured at concentrations greater than the preliminary screening values would be considered a COPC.

There were no detections of explosives in the soil samples. Additionally, none of the maximum detected concentrations of the target metals exceeded their respective residential TCEQ Tier 1 PCLs (both for residential soil and soil to groundwater) and were below the Texas-Specific Median Background Concentrations and the calculated site-specific background threshold value. These results showed there were no COPCs associated with MEC/MC at the MRS. Therefore, there are no complete exposure pathways, and the baseline human health risk assessment indicates that MC-related contamination does not pose a risk to current or future human receptors exposed to site soil, surface water, or groundwater from past DoD activities (TtEC, 2015).

While ecological receptors are not considered in evaluating MEC hazards, their presence must be considered in planning remedial actions at the site. A screening level risk assessment was conducted based on the results of the soil sampling. The ecological SSLs were based on the USEPA Eco-SSLs except for the following, which are from Efroymsen et al. 1997: antimony, barium, mercury, molybdenum and vanadium ecological SSLs for plants and arsenic and mercury ecological SSLs for soil invertebrates. No explosives were detected in the soil samples. Of the target metals sampled, two metals (chromium and vanadium) had concentrations over the lowest ecological screening values, but both results were below the Texas-Specific Median Background Concentrations and were considered to be present at naturally occurring levels. Based on the screening level ecological risk assessment, there are no adverse effects to ecological receptors from explosives compounds or metals (TtEC, 2015).

While the endangered Houston toad has been observed in Bastrop County, none have been observed in, or near, MRS 7. No other endangered species were identified in the Biological Opinion. Therefore, because no chemicals of potential ecological concern were identified for this MRS, this endangered species is not considered to be at risk from explosives compounds or metals based on the screening level ecological risk assessment and there are no adverse effects to ecological receptors from explosives compounds or metals (TtEC, 2015).

2.8 REMEDIAL ACTION OBJECTIVES

Remediation goals identified in the FS for MRS 7 are:

1. Ensure protectiveness of site workers, residents, farmers, ranchers, and the public during the response action operations.
2. Ensure overall protectiveness of the public after completion of the response action by minimizing the potential for site users and the public to be exposed to MEC.
3. Comply with ARARs.

With these goals in mind, the remedial action objective (RAO) developed specifically for MRS 7 in the FS (previously identified as “MRS 2c” in the FS) was as follows:



The RAO is to perform a clearance activity to remove MEC to a depth of at least 20 inches such that UU/UE can be obtained and in order to reduce the probability of human interaction during residential development and/or agricultural activities that could exceed 20 inches. (TtEC, 2015)

Given the potential for residential development of the Camp Swift MRSs, and the associated potential for the construction of buried or lower-elevation infrastructure (septic systems, sanitary sewer lines, water mains, fire hydrant lines, roadbeds, etc.) the FS included options with both 24 in and 36 in planned remediation depths. Both depths were expected to meet the RAO by removing MEC “to a depth of at least 20 in” and by reducing “the probability of human encounters or interaction during residential development.” However, based on discussions with and concurrence with TCEQ 36-in bgs is considered the safest option given the potential for residential development.

The RAO was summarized in the Proposed Plan (identified in the Proposed Plan as MRS 2) as:

Perform clearance to remove presence of MEC to depth of 20 inches. (USACE, 2015)

The overall project RAO for MRS 7 is to reduce risk due to the presence of 2.36-in rockets, 4.2-in M2 mortars, 4.2-in HE mortars, 105mm TP projectiles, 105mm M1 projectiles; 75mm M64 projectiles, 75mm MK1 projectiles, rifle grenades, 37mm projectiles, and antitank mines (M7) within MRS 7 to a depth of 36-in bgs to address likelihood of exposure to current and future site workers, residents, farmers, ranchers and public via surface and subsurface interactions during residential development and/or agricultural activities such that acceptable risk conditions are achieved. Prior investigations within MRS East identified MEC and MD to a depth of 20-in bgs.

Table 2.8–1 provides the depth of detection of the munitions of concern associated with MRS 7. A subsurface removal in the accessible portions of the site to the depth of detection in combination with the LUCs will mitigate the risk of an incident to occur to human receptors such that a determination can be made that there is a negligible risk of an incident to occur, thus meeting the intent of the RAO. Note that due to the progression of MRS naming, the specific items found only within MRS 7 cannot be determined. Therefore, this table includes all munitions of concern found within MRS East/MRS 2c per the RI/FS and Proposed Plan.



Table 2.8–1: Camp Swift DGM Depth of Detection

Munition Item*	TDEM (EM61-MK2)	AGC Sensor (MetalMapper 2x2)
	NRL Typical Max Detection Depth** (ft)	Forward Model detection depth*** (ft).
2.36-in rockets	2.07	1.5
4.2-in M2 mortar	4.39	3.11
4.2-in HE mortar	NA	2.76
105mm TP projectile	4.3	2.89
105mm MI projectile	NA	2.4
75mm M64 projectile	3.12	2.23
75 mm MK1 projectile	NA	2.0
Rifle Grenade	1.08	1.34
37mm projectile	1.3	1.14
AT Mine, M7	N/A	2.46

Notes:

DGM denotes digital geophysical mapping.

AGC denotes advanced geophysical classification.

NRL denotes Naval Research Laboratory.

TDEM denotes Time Domain Electromagnetic.

* Prior documentation does not provide make and models; therefore, this list includes different models of the same type of item for informational purposes.

** MR-9155 EM61-MK2 Response of Standard Munitions Items, October 2008, Naval Research Laboratory. Depths indicated are for items centered under the coil at horizontal (worst case) orientation, 5 mV, EM61 Channel 2.

*** Forward models generated using Geosoft’s Oasis Montaj UX-Analyze module and the standard and full DoD 3ms Libraries. The detection threshold set at 0.75 mV/A.

Current and anticipated future land uses were considered in development of the RAO. Achievement of the RAO will reduce the risk to site users by removing mortars, projectiles, rockets, and practice antitank mines from the site and raising awareness of the actions for the public to take should they encounter or interact with MEC in areas found to be inaccessible to removal activities (obstructions to removal activities) or areas where ROE has been denied.

While UU/UE is the ideal outcome of the remedial activity, it is unlikely to be achieved in inaccessible areas such as beneath large diameter trees, standing bodies of water, or other immovable obstructions to the detection equipment. Denied ROE to land or existing structures such as residences and outbuildings would also preclude UU/UE in those areas.

2.9 DESCRIPTION OF ALTERNATIVES

A range of general response actions were identified, evaluated, and screened to develop a list of possible remedial alternatives for the Camp Swift MRSs. These general response actions were (a) no action (considered as a baseline), (b) LUCs (e.g., public education on hazard awareness and informative websites), and (c) source (MEC) removal.

Technology options for these general response actions were evaluated on screening criteria that included



effectiveness, implementability, and cost. Methods deemed to be viable were combined into possible remedial alternatives for MRS 7. As required by CERCLA, a No Action alternative was included. The intent of No Action is to provide a baseline to which other alternatives can be compared. A detailed description of the alternative development process for the former Camp Swift is provided in the RI/FS (TtEC, 2015).

The FS identified 11 remedial alternatives appropriate for the MRSs at the former Camp Swift. Five of these were deemed feasible for MRS 7 and were carried forward for analysis.

2.9.1 Remedy Components

Components of each alternative are described below. Alternatives 4C and 4D are the same except for the planned depth of removal (4C = 2 ft and 4D = 3 ft) and will be evaluated concurrently. This also applies to Alternative 5C and 5D (5C = 2 ft and 5D = 3 ft). Costs are quoted from the final FS in 2015 dollars. The cost presented in the Proposed Plan (USACE, 2015) was adjusted by an escalation factor that was added based on the elapsed time between the preparation of the FS and the Proposed Plan. Further revisions to cost, based on technological advancements, efficiencies, and elapsed time since the Proposed Plan, are made in Section 2.12.3 of this DD.

Alternative 1: No Action

The No Action alternative has no components. It provides a baseline to which other alternatives are compared. The risk of exposure to MEC at the site will remain because no action will be taken and MEC hazards will not be removed. There is no financial cost associated with this alternative.

Alternative 2: Land Use Controls (Public Outreach and Education)

An educational awareness program would focus on providing information on the areas containing the MEC hazards and the appropriate response if MEC is encountered. These preventive measures would include periodic educational public meetings on the 3Rs Explosives Safety Education Program and periodic educational fact sheets that have the goal of modifying behavior to reduce the risk of exposure and reduce the impact if exposure occurs. Fact sheets and educational materials would be distributed through the community and to landowner(s) and residents on parcels in areas that the RI has identified as having MEC hazards. Additionally, a website containing relevant project documents and MEC educational and safety information, such as the 3Rs Explosives Safety Education Program is available. Links to the 3Rs Explosive Safety Education Program will be shared with the community (<https://www.3Rs.mil>). USACE has conducted a major public outreach campaign during the prior remedial actions and the RI/FS project. Maintaining public awareness for the hazards that exist within former Camp Swift can be facilitated by continuing these proven methods. The TCEQ, USEPA, and USACE have confirmed that an attempt to implement deed restrictions would not be feasible. LUCs have operation and maintenance (O&M) costs which include fact sheets, educational materials, and 5YR.

- This alternative provides the community information on the history of MRS 7, the nature of the MEC hazard and associated risks, and actions to be taken in the event an individual encounters MEC. This information will be distributed through mailers and information packets. No ROE is required to implement public outreach and education.
- Distribution and upkeep of the informational materials will be the responsibility of USACE.
- Under this alternative there is the potential for munitions to remain on the surface and in the shallow subsurface.



- While LUCs have been shown to be an effective means of controlling risk at FUDS, they ultimately depend on people to heed the information given them and respond in the appropriate manner. This cannot always be assured.
- USACE expects Alternative 2 can be designed and implemented within 1 year of approval of this DD.
- The estimated cost of Alternative 2 is \$139,448 over the next 30 years. Thirty years is used for cost estimating purposes per the DERP manual; LUCs will be required indefinitely to manage risks from residual MEC. Actions during this phase may involve monitoring site conditions, implementing and managing LUCs and performing 5YR.
- Current land uses can continue following implementation of this remedy. Future subsurface work (e.g., fencing, grading, well digging) may require consultation with unexploded ordnance (UXO) technicians to ensure workers are not exposed to MEC. This also applies to future land uses that include construction activities, such as residential development.

Alternative 3: Surface Removal with Land Use Controls

Alternative 3 includes removing MEC from all accessible surface areas at MRS 7 with LUCs to address the risk posed by MEC that may remain in the subsurface. This alternative requires ROE from the landowner(s) for it to be executed.

- Vegetation on the site will be trimmed to maximize accessibility. The property owner may limit the amount and location of vegetation trimming.
- Teams of UXO technicians will conduct a systematic survey using analog metal detectors to identify and remove MEC on the ground surface at MRS 7.
- Recovered MEC will either be blown-in-place or, if safe to move, detonated in a consolidated shot.
- All metal remaining from demolition shots and MD found during surface clearance work will be disposed offsite.
- Following the surface clearance, LUCs will be required to address risks due to MEC that may remain below the ground surface. LUCs will be implemented as described in Alternative 2.
- Under this alternative there is the potential for munitions to remain in the shallow subsurface.
- The remaining MEC risk will occur to users engaged in digging or excavating activities. These are expected to be very limited under current land use. If land use changes to more active uses the risk of exposure to MEC will increase. While LUCs have been shown to be an effective means of controlling risk at FUDS, they ultimately depend on people to heed the information given them and respond in the appropriate manner. This cannot always be assured.
- USACE expects Alternative 3 can be designed and implemented within 2 years of approval of this DD.
- The estimated cost of Alternative 3 is \$915,529 over the next 30 years. Thirty years is used for cost estimating purposes per the DERP manual; LUCs will be required indefinitely to manage risks from residual MEC. Actions during this phase may involve monitoring site conditions, implementing and managing LUCs and performing 5YR.
- Current land uses can continue following implementation of this remedy. Future subsurface work (e.g., fencing, grading, well digging) may require consultation with UXO technicians to ensure



workers are not exposed to MEC. This also applies to future land uses that include construction activities, such as residential development.

Alternative 4C/D: Surface and Subsurface Removal of MEC using Digital Geophysical Mapping with Land Use Controls

Alternatives 4C/D include removing MEC from all accessible surface and subsurface areas of MRS 7. This alternative requires ROE from landowner(s) for it to be executed.

- Vegetation trimming and surface MEC clearance will be executed as described in Alternative 3.
- DGM will be conducted across the site using a Geonics EM-61 MkII metal detector (or equivalent).
- EM-61 data will be analyzed to identify anomalies that could be caused by buried MEC.
- UXO technicians will return to the site and excavate at these locations to identify the sources of the targets. In the event a target remains unresolved after excavating to the clearance depth (2 ft in 4C, 3 ft in 4D) UXO technicians will excavate deeper until the target is resolved.
- All recovered MEC will be destroyed by blowing in place or, if it is safe to move, in a consolidated shot at MRS 7. No public roads will be crossed while transporting MEC.
- All metal remaining from demolition shots and MD found during anomaly excavation work will be disposed offsite.
- Following completion of MEC removal activities MEC may remain in areas of denied ROE or inaccessible to the clearance teams, and LUCs will be implemented as described in Alternative 2.
- USACE expects Alternatives 4C/D can be designed and implemented within 3 years of approval of this DD.
- The estimated costs of Alternatives 4C/D are \$3,714,042/\$4,840,756, respectively. Thirty years is used for cost estimating purposes per the DERP manual; LUCs will be required indefinitely to manage risks from residual MEC. Actions during this phase may involve monitoring site conditions, implementing and managing LUCs and performing 5YR.
- Current land uses can continue following implementation of this remedy. If ROE is denied or inaccessible areas are encountered due to obstructions, future subsurface work (e.g., fencing, grading, well digging) may require consultation with UXO technicians to ensure workers are not exposed to MEC. This also applies to future land uses that include construction activities, such as residential development.

Alternative 5C/D: Surface and Subsurface Removal of MEC using Digital EMI Systems in conjunction with Advanced Geophysical Classification with Land Use Controls

Alternative 5 includes surface and subsurface clearance of all accessible areas of MRS 7. This alternative requires ROE from landowner(s) for it to be executed. This alternative is similar to Alternatives 4C/D except that it incorporates innovative AGC technology for mapping MEC locations. This reduces the number of excavations needed to recover all the MEC. USACE policy requires an AGC alternative be evaluated.

- Vegetation trimming will be executed as described in Alternative 3.
- Geophysical mapping will be conducted across the site using AGC instruments. AGC is an innovative technology that predicts whether an anomaly is caused by a specific munition or scrap metal. Since the greatest cost of cleaning up munitions sites is from digging scrap metal, AGC can



be a more cost-effective remediation method. AGC also provides more information about the anomalies left in the ground, thereby increasing confidence in the remedy.

- AGC calls anomalies caused by buried munitions targets of interest (TOI). Anomalies with an uncertain source will be characterized as 'Can't Analyze.' All TOI and targets that can't be analyzed will be excavated. Anomalies caused by scrap metal are called non-TOI and most of them will not be excavated.
- Following AGC geophysical surveying, UXO technicians will return to the site and excavate TOI locations to identify the sources of the anomalies. In the event an anomaly remains unresolved after excavating to the clearance depth (2 ft in 5C, 3 ft in 5D) UXO technicians will excavate deeper until the anomaly is resolved. A limited number of non-TOI will also be excavated for quality control/quality assurance purposes.
- All recovered MEC will be destroyed by blowing in place or, if it is safe to move, in a consolidated shot at MRS 7.
- All metal remaining from demolition shots and MD found during TOI excavation work will be disposed offsite.
- Following completion of MEC removal activities MEC may remain in areas of denied ROE or inaccessible to the clearance teams, and LUCs will be implemented as described in Alternative 2.
- USACE expects Alternative 5 can be implemented within 3 years of approval of this DD.
- The estimated costs of Alternatives 5C/D are \$2,261,375/\$2,479,488, respectively. Thirty years is used for cost estimating purposes per the DERP manual; LUCs will be required indefinitely to manage risks from residual MEC. Actions during this phase may involve monitoring site conditions, implementing and managing LUCs and performing 5YR.
- Current land uses can continue following implementation of this remedy. If ROE is denied or inaccessible areas are encountered due to obstructions, future subsurface work (e.g., fencing, grading, well digging) may require consultation with UXO technicians to ensure workers are not exposed to MEC. This also applies to future land uses that include construction activities, such as residential development.

Five-Year Reviews

Five-year reviews will be conducted for areas where MEC remains at a site above levels that allow UU/UE following the completion of remedy. Per the DERP Manual; LUCs will be required indefinitely to manage risks from residual MEC. Actions during this phase may involve monitoring site conditions, implementing and managing LUCs, and performing 5YR. Land use controls include the cost of O&M and 5YR.

The reviews are conducted to ensure that the response action remain protective of human health, safety, and the environment.

2.9.2 Common Elements and Distinguishing Features of Each Alternative

Alternative 1 has no common elements with any other alternatives. Its distinguishing feature is no action will be taken and MEC hazards will remain at the site.

Alternatives 2, 3, 4, and 5 have a LUC component. This is necessary because these alternatives will, or may, leave MEC at the site. No MEC removal is proposed in Alternative 2, while Alternative 3 removes MEC only from the surface. In Alternatives 4 and 5 MEC may remain in areas of denied ROE or



inaccessibility to the field teams. LUC will be required forever, or until all MEC is removed, whichever comes first.

Alternatives 3, 4, and 5 have a vegetation trimming component. This is necessary to maximize field teams' access to the site for executing the remedy.

Alternatives 3, 4, and 5 have a surface removal component. In Alternative 3 this is protective of future non-intrusive activities but doesn't mitigate the risk to subsurface activities posed by buried MEC.

Alternatives 4C/D and 5C/D are the same with the exception of the innovative technology used in Alternative 5. The depth of detection of the expected munitions at MRS 7 varies between geophysical equipment and the executing team will determine which piece(s) of equipment are acceptable to meet both the RAO and preferred alternative. The duration and cost for each alternative is:

Table 2.9–1: Cost and Duration for Remedial Options at MRS 7

Alternative	Design and Execute	Operation and Maintenance	Estimated Cost ⁽¹⁾
Alternative 1	1 year	>30 years	\$0
Alternative 2	1 year	>30 years	\$139,448
Alternative 3	2 years	>30 years	\$915,529
Alternative 4C	3 years	>30 years	\$3,714,042
Alternative 4D	3 years	>30 years	\$4,840,756
Alternative 5C	3 years	>30 years	\$2,261,375
Alternative 5D	3 years	>30 years	\$2,479,488

Note:

Above costs are direct from the final RI/FS Appendix K (TtEC, 2015).

(1) Alternatives 2 through 5D include a LUC and 5YR component. LUCs and 5YR continue until the MEC hazard is removed. See Section 2.9.1 for more information on 5YR.

ARARs are described in Part 1 Section 1.5. No ARARs apply to Alternative 1. For the remaining alternatives, there are two ARARs. The Biological Opinion (Appendix F of the RI/FS) has identified the endangered Houston toad as being present in Bastrop County to the south of MRS 7. While it has not been observed at MRS 7, USACE will implement “reasonable and prudent measures” and follow terms and conditions of the Biological Opinion from U.S. Fish and Wildlife Service (Consultation No. 21450-2011-F-0105). This will prevent jeopardy to the species and destruction, or adverse modification of critical habitat as required by the Endangered Species Act. The prohibition on “take” will apply to other listed species that may be present in MRS 7, though no critical habitat has been designated. No other endangered species were identified in the Biological Opinion. This ARAR applies to Alternatives 3, 4C/D, and 5C/D.

An action specific ARAR under the Resource Conservation and Recovery Act (RCRA) Subpart X is applicable if consolidated demolition is performed by open burning/open detonation or treatment within a blast chamber or if a single location is selected for demolition of all MEC found. Substantive requirements of RCRA Subpart X require that certain location, performance, and operating standards are met which are



protective of human health and the environment. USACE will meet the performance standards for this alternative. This ARAR applies to Alternatives 3, 4C/D, and 5C/D if MEC is disposed via blow-in-place or consolidated shot.

There are no chemical specific ARARs requiring removal of MEC to regulatory levels.

There are no COPCs related to MECs at the site.

2.9.3 Expected Outcomes of Each Alternative

No socioeconomic or community revitalization impacts are anticipated as a result of implementing any of the alternatives. No environmental or ecological benefits (such as restoration of sensitive ecosystems, protection of endangered species, protection of wildlife resources, or wetlands restoration) are expected as a result of implementing any of the alternatives. The RI documented no COPCs at the site, thus there are no impacts on groundwater use. For more information, see Section 2.7.

Alternative 1: No Action

Alternative 1 does not reduce potential current and future MEC exposure hazards, if present. The NCP requires the No Action alternative to be evaluated and it means simply that a remedial action will not be implemented. No costs are associated with this alternative since there would be no further action. This alternative does not meet the RAOs or effectiveness screening criteria for MRS 7 because there is a potentially complete MEC pathway.

Alternative 2: Land Use Controls (Public Outreach and Education)

Under LUCs, the threat to public health from MEC exposure will be reduced only to the extent that the controls are effective in limiting potential exposures and the risky behavior of individuals. While current land use can continue, site users may need to contract for UXO mitigation services if they plan work that could disturb the ground. For example, any work that involves digging or excavating should have a surface and subsurface clearance action carried out over the planned work area.

The educational awareness program has the goal of public awareness of existing hazards and providing information regarding the appropriate response if MEC is encountered. An educational awareness program will consist of development of educational tools and materials [e.g., periodic public meeting, periodic fact sheets for landowners in the area, and a link to the 3Rs Explosive Safety Education Program (<https://www.3Rs.mil>)].

Although this alternative would not be as effective as MEC removal, educational awareness will help influence behavior to reduce the risk of exposure. Landowner(s) and potential land users would both receive information regarding the risks associated with land use provided through educational awareness efforts. Specifically, a person who has seen a fact sheet is more likely to respond appropriately if a suspect item is found (versus a person who has not seen a fact sheet). However, LUCs do not ensure overall protectiveness because it only limits the potential for site users and the public to be exposed to MEC. It does not account for risky behavior by the public ignoring the precautions promoted by an educational awareness program. There is no source reduction of potential MEC associated with this alternative.

Alternative 2 will not achieve the RAO.



Alternative 3: Surface Removal with Land Use Controls

This alternative will be effective in the removal of MEC located only on the surface. LUCs will be implemented as described in Alternative 2 to address the hazard from MEC that may remain in the subsurface.

Alternative 3 will not achieve the RAO.

Alternative 4C/D: Surface and Subsurface Removal of MEC to 2 and 3 feet, respectively, using Digital Geophysical Mapping with Land Use Controls

Alternatives 4C/D will eliminate the risk of direct contact with MEC on the surface and in the subsurface to the depths of 2 and 3 ft, respectively, in areas accessible to field crews at the site. LUCs will be implemented as described in Alternative 2 to address the hazard from MEC that may remain in areas of denied ROE or inaccessibility to field crews where the remedy cannot be implemented.

Alternatives 4C/D achieve the RAO.

Alternative 5C/D: Surface and Subsurface Removal of MEC to 2 and 3 feet, respectively, using Digital EMI Systems in conjunction with Advanced Geophysical Classification with Land Use Controls

Alternatives 5C/D will eliminate the risk of direct contact with MEC on the surface and in the subsurface to the depths of 2 and 3 ft, respectively, in areas accessible to field crews at the site. LUCs will be implemented as described in Alternative 2 to address the hazard from MEC that may remain in areas of denied ROE or inaccessibility to field crews where the remedy cannot be implemented.

Alternatives 5C/D achieve the RAO.

2.10 COMPARATIVE ANALYSIS OF ALTERNATIVES

2.10.1 Evaluation Method

A detailed analysis was completed for the various remedial alternatives developed to address the potential MEC hazards at MRS 7. The analysis evaluated and compared the remedial action alternatives against the baseline condition (no action) and each other to select the preferred alternative to address site risks. A detailed account of this analysis is provided in the RI/FS (TtEC, 2015). A summary of this process is provided here.

The detailed analysis evaluated each remedial alternative against nine CERCLA-mandated criteria.

These nine criteria are split into three groups:

- **Threshold criteria** are (a) overall protectiveness of human health and the environment and (b) compliance with ARARs. An alternative must meet the requirements of these criteria in order to be considered for further evaluation.
- **Primary balancing criteria** are used to weigh major trade-offs among alternatives and include (a) long-term effectiveness and permanence, (b) reduction of toxicity, mobility, or volume of contaminants through treatment, (c) short-term effectiveness, (d) implementability, and (e) cost.
- **Modifying criteria** include (a) state/support agency acceptance and (b) community acceptance. These are considered after the public and stakeholders have had the opportunity to comment on



the Proposed Plan. In the final balancing of trade-offs between alternatives upon which the final remedy selection is based, modifying criteria and primary balancing criteria are equally important.

The details of the nine evaluation criteria are explained further in Table 2.10–1.

Table 2.10–1: Evaluation Criteria for Remedial Action Alternatives

Threshold Criteria	<p>Overall Protectiveness of Human Health and the Environment determines whether an alternative adequately protects human health and the environment from unacceptable risks posed by MEC in both the short- and long-term.</p>
	<p>Compliance with ARARs evaluates whether the alternative meets federal and state environmental statutes, regulations, and other requirements that pertain to the site, or whether a waiver is justified.</p>
Primary Balancing Criteria	<p>Long-term Effectiveness and Permanence considers the ability of an alternative to maintain protection of human health and the environment over time.</p>
	<p>Reduction of Contaminants through Treatment evaluates an alternative's use of treatment to reduce the harmful effects of principal contaminants, their ability to move in the environment, and the amount of contamination present.</p>
	<p>Short-term Effectiveness considers the length of time needed to implement an alternative and the risks the alternative poses to workers, residents, and the environment during implementation.</p>
	<p>Implementability considers the technical and administrative feasibility of implementing the alternative, including factors such as the relative availability of goods and services.</p>
	<p>Cost includes estimated capital and annual operations and maintenance costs, as well as present worth cost. Present worth cost is the total cost of an alternative over time in terms of today's dollar value. Cost estimates are expected to be accurate within a range of +50 to -30 percent.</p>
Modifying Criteria	<p>State/Support Agency Acceptance considers whether the state agrees with the analyses and recommendations, as described in the RI/FS and Proposed Plan.</p>
	<p>Community Acceptance considers whether the local community agrees with the analyses and preferred alternative. Comments received on the Proposed Plan are an important indicator of community acceptance.</p>

2.10.2 Evaluation Summary

Each of the seven Alternatives (1, 2, 3, 4C/D, and 5C/D) were evaluated against the nine CERCLA criteria (Table 2.10–1). The following sections summarize the evaluation of each alternative and identifies the most practicable solution for reducing the potential MEC exposure hazard at MRS 7. Note the remedial alternatives in the Proposed Plan were titled to reference the depth of removal of MEC hazards. This DD



updates those Alternatives to clarify that if MEC is identified below the stated removal depth it will be removed in accordance with best practices and USACE policy [EM 385-1-97 and EM 200-1-15].

2.10.2.1 Overall Protectiveness of Human Health and the Environment

Overall protection of human health and the environment addresses whether an alternative provides adequate protection of human health and the environment and describes how risks posed through each exposure pathway are eliminated, reduced, or controlled, through treatment, engineering controls, and/or institutional controls.

Alternative 1 provides no source reduction or reduction of future risk and is not protective of human health and the environment. Alternative 1 does not achieve the MRS 7 specific RAO.

Alternative 2 provides no source reduction but limits the potential exposures by educating users and the public about the risk of MEC exposure at the site via LUCs. It does not account for risky behavior by the public ignoring the precautions promoted by an educational awareness program. Alternative 2 is not considered protective of human health and the environment and does not achieve the MRS 7 specific RAO.

Alternative 3 includes source removal for MEC on the ground surface and leaves MEC in the subsurface. Since MEC will remain in the subsurface LUCs are needed to address risk to users engaged in ground disturbance activities. Alternative 3 is not considered protective of human health and the environment and does not achieve the MRS 7 specific RAO.

Alternatives 4C/D and 5C/D all include source removal on the surface and in the subsurface. These alternatives can be implemented at the site to allow for UU/UE. In the event MEC remain at the site due to inaccessible areas (obstructions) or denied ROE, UU/UE will not be possible for those areas and LUCs will be needed to address risk to users engaged in ground disturbance activities. Alternatives 4C/D and 5C/D are protective of human health and the environment and achieve the MRS 7 specific RAO.

2.10.2.2 Compliance with ARARs

Section 121(d) of the CERCLA [42 USC §9621(d)] states that remedial actions on CERCLA sites must comply with, or have a waiver for, any ARARs, which include regulations, standards, criteria, or limitations promulgated under federal environmental, or more stringent state environmental or state facility siting laws.

The endangered Houston toad is present in Bastrop County but has not been observed in MRS 7. To prevent incidental takes during fencing installation for LUCs, surface/subsurface clearance, or during detonation of MEC, USACE will implement “reasonable and prudent measures” to ensure the terms and conditions of the Biological Opinion from U.S. Fish and Wildlife Service (Consultation No. 21450-2011-F-0105) are implemented. There were no other endangered species identified in the Biological Opinion.

Alternatives 3, 4C/D, and 5C/D may include demolition of MEC, which has the potential to leave unacceptable levels of chemical residues at the site. 40 CFR 264 Subpart X will apply if a consolidated demolition of MEC for treatment by open burn/open detonation or blast chamber is performed.

No ARARs are applicable to Alternative 1.

2.10.2.3 Long-term Effectiveness and Permanence

Long-term effectiveness and permanence refer to expected residual risk and the ability of a remedy to maintain reliable protection of human health and the environment over time once clean-up levels have been



met. This criterion includes the consideration of residual risk that will remain on site following remediation and the adequacy and reliability of controls.

Alternative 1 provides no protection and is permanently ineffective.

The effectiveness of Alternative 2 may lessen over time as the target population becomes inured to the repeated warnings. LUCs are dependent on continued funding and implementation by USACE.

Alternative 3 is effective in permanently removing risk from surface MEC. Risk from subsurface MEC may remain and will be addressed with LUCs. The effectiveness of the LUC portion of the remedy may lessen over time as the target population becomes inured to the repeated warnings. LUCs are dependent on continued funding and implementation by USACE.

Alternatives 4C/D and 5C/D include surface and subsurface source removal. Source removal is an effective and permanent means to eliminate risk. Risk from subsurface MEC may remain in areas of denied ROE or inaccessibility preventing the implementation of the remedy and will be addressed with LUCs. The effectiveness of the LUC portion of the remedy may lessen over time as the target population becomes inured to the repeated warnings. LUCs are dependent on continued funding and implementation by USACE.

2.10.2.4 Reduction of Contaminants through Treatment

Reduction of toxicity, mobility, or volume through treatment refers to the anticipated performance of the treatment technologies that may be included as part of a remedy.

There is no reduction in the amount of MEC in Alternatives 1 and 2.

Alternative 3 will remove MEC from the ground surface, but MEC will remain in the subsurface.

Alternatives 4C/D and 5C/D will remove surface and subsurface MEC from all accessible areas of the site.

2.10.2.5 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 construction and operation of the remedy until cleanup levels are achieved.

Alternative 1 is ineffective because of the risks posed by MEC at the site.

The short-term effectiveness of the 3Rs portion of Alternative 2 is high as there is no physical exposure to the site by those developing and implementing the 3Rs. If fencing is included as part of the LUCs site workers will be exposed to general construction and surface/subsurface MEC exposure risks. Alternative 2 can be implemented within 1 year at no risk to the general population.

The short-term effectiveness of Alternative 3 includes risks to site workers engaged in MEC surface clearance activities. Vegetation will need to be trimmed/cut to allow access to workers and equipment but should quickly recover after site work is complete. Surface MEC at the site will continue to pose a risk to site users and workers until the remedy is complete. There are potential risks to workers performing the geophysical surveys and MEC clearance activities (general construction, MEC exposure). LUCs can be implemented as in Alternative 2. Alternative 3 can be implemented within 2 years at no risk to the general population.



The short-term effectiveness of Alternatives 4C/D and 5C/D includes risks to site workers engaged in surface and subsurface MEC clearance activities. Vegetation will need to be trimmed/cut to allow access to workers and equipment but should quickly recover after site work is complete. MEC on the site will continue to pose a risk to site users until the remedy is complete. There are potential risks to workers performing the geophysical surveys and MEC clearance activities (general construction, MEC exposure). Since Alternatives 5C/D classify anomalies as likely to be munitions or not, there will be fewer excavations required and consequently less risk to site workers than in Alternatives 4C/D. Both alternatives can be implemented within 3 years at no risk to the general population.

2.10.2.6 Implementability

Implementability addresses the technical and administrative feasibility of a remedy from design through construction and operation. Factors such as availability of services and materials, administrative feasibility, and coordination with other governmental entities are also considered.

Alternative 1 is the existing condition.

Alternative 2 is easily implementable and could be in place within 1 year. There are no constraints to implementing the 3Rs program at MRS 7. While the landowner(s) granted access for the RI field work, it is unknown whether access will be granted for installation of fencing if needed.

Alternatives 3, 4C/D, and 5C/D are easily implementable and could be in place within 2 years for Alternative 3 and 3 years for Alternatives 4C/D and 5C/D. All five require the landowner(s) to agree to ROE and give permission to trim vegetation, as well as conduct digging operations. The landowner(s) could place restrictions on the amount of vegetation trimming allowed or areas where digging could be conducted or deny ROE. Permanent structures at the site would prevent geophysical surveys beneath the structure’s footprint. MEC may remain in these inaccessible areas or areas of denied/limited ROE, thus preventing the implementation of the remedy in those areas.

2.10.2.7 Cost

Costs are estimated in "constant dollars," denominated in terms of the base year (Year 0). "Constant dollars" (or "real dollars") are not affected by general price inflation. Present worth cost estimates, as cited in the 2015 final RI/FS report are:

Alternative 1.....	\$0
Alternative 2.....	\$139,448
Alternative 3.....	\$915,529
Alternative 4C.....	\$3,714,042
Alternative 4D.....	\$4,840,756
Alternative 5C.....	\$2,261,375
Alternative 5D.....	\$2,479,488

Alternatives 5C/D are estimated to cost less than 4C/D because the advanced technology used in 5C/D will reduce the number of unnecessary digs during subsurface MEC removal operations at the site.

2.10.2.8 State Acceptance

The TCEQ concurred with the Draft Final Decision Document, Munitions Response Site 7, (Attachment 1), on August 15, 2022.



2.10.2.9 Community Acceptance

As described in Part 3 of this DD, no comments pertaining to the Preferred Alternative, Surface and Subsurface Removal of MEC to 3 feet using Digital EMI Systems in conjunction with Advanced Geophysical Classification with Land Use Controls, at the MRS were received during the 30-day public comment period nor at the public meeting. After the DD is signed, USACE shall publish a notice of the availability of the DD in the *Austin American Statesman* and make the DD available for public inspection and copying at the Bastrop Public Library, 1100 Church Street, Bastrop, Texas 78602 prior to the beginning of any remedial action.

2.10.2.10 Conclusion

Alternative 1 does not meet the threshold criteria and must be ruled out.

Alternatives 2 and 3 can be readily implemented, and can be completed within 1 and 2 years, respectively, of the signature of the DD, but are not protective of human health and the environment and do not achieve the RAO.

Alternatives 4C/D are protective of human health and the environment, achieve the RAO, provide an effective and permanent remedy, can be readily implemented, and can be completed within 3 years of the signature of the DD.

Alternatives 5C/D are protective of human health and the environment, achieve the RAO, provide an effective and permanent remedy, can be readily implemented, and can be completed within 3 years of the signature of the DD. The advanced technology utilized in Alternatives 5C/D offer a significant cost savings to Alternatives 4C/D.

2.11 PRINCIPAL THREAT WASTE

There are no principal threat wastes at MRS 7.

2.12 SELECTED REMEDY

The Selected Remedy for MRS 7 is Alternative 5D: Surface and Subsurface Removal of MEC to 3-ft bgs using Digital EMI Systems in conjunction with Advanced Geophysical Classification with Land Use Controls. Table 2.8–1 provides the depth of detection of the munitions of concern associated with MRS 7. A subsurface removal in the accessible portions of the site to the depth of detection in combination with the LUCs will mitigate the risk of an incident to occur to human receptors such that a determination can be made that there is a negligible risk of an incident to occur, thus meeting the intent of the RAO.

2.12.1 Rationale for the Selected Remedy

Alternative 5D was selected because it will remove MEC hazards from MRS 7 (146 acres) in the most cost-effective manner, with LUCs to address risk from MEC that may remain in the event inaccessible areas are encountered or ROE is denied. Although the Alternative 5C (2-ft removal) would meet the RAO, the Selected Remedy of Alternative 5D (3-ft removal) is considered protective of the potential receptors because it provides a 16-in clearance from the greatest depth of discovery of MEC at Camp Swift.

The depth of the Remedial Action is based on historical data, the results of the RI, discussions with TCEQ, and the current and anticipated future land use, which includes the potential for residential development



and/or agricultural activities. The combination of a physical removal and LUCs will limit interaction/reduce risk from MEC for site workers, residents, recreational users, site visitors, and ecological receptors. The efficacy of the removal can be demonstrated when all identified TOI and potential MEC are removed. MRS 7 has confirmed MD findings up to 20-in bgs. It is possible that MEC are present at MRS 7 in areas that have not been previously investigated or cleared to the depth of the Selected Remedy. Alternative 5D includes a subsurface removal to 3-ft bgs using Digital EMI Systems in conjunction with Advanced Classification. Alternative 5D provides the most long-term effectiveness and permanence for MRS 7 because it removes MEC to a depth below the deepest MEC/MD found in eastern Camp Swift during the previous EE/CA and RI. Alternative 5D includes surface and subsurface removal to a 3-ft depth over the entire MRS.

This alternative was evaluated as the UU/UE alternative because it provides a removal at least an additional 16-in deeper than MEC was confirmed or anticipated. In addition to the subsurface removal Alternative 2 (LUCs) will be implemented and a public outreach component added focusing on minimizing or controlling potential exposures to the public by informing them of the dangers and educating them on the procedures to follow to avoid and report discovered MEC in areas of denied ROE or inaccessibility. If the ROE provides 100% unrestricted access and there are no obstructions to MRS 7 there will be no inaccessible areas and Alternative 5D may achieve an UU/UE end state. However, based on the presence of homes, buildings, and underground utilities, it is likely some areas of MRS 7 will be inaccessible. Therefore, it is considered unlikely that the performance of this Alternative will achieve an UU/UE risk designation over the entire site.

2.12.2 Description of the Selected Remedy

- Negotiate the ROE agreement between the landowner(s) and USACE documenting both parties' rights and responsibilities during implementation of the remedy.
- With input from all stakeholders draft a work plan describing actions to be taken to implement the remedy. The work plan will use the most recent Advanced Geophysical Classification Quality Assurance Project Plan template as required by FUDS policy.
- Coordinate schedules with the property owner(s) and mobilize support equipment to the site, such as office and storage trailers, electrical hookup or a generator, a magazine for storage of donor charges, waste storage, and sanitary facilities.
- Surveyors will divide the site into grids to facilitate field activity management. Typical grid sizes range from 50 x 50 ft to 200 x 200 ft.
- Vegetation on the site will be trimmed to maximize accessibility. Typically, this includes cutting ground cover and shrubs to a height of 6 in and cutting down smaller trees (defined as 4-inch trunk diameter at 4 ft above ground). The property owner may limit the amount and location of vegetation trimming.
- Install an instrument verification strip (IVS). The IVS is used to provide quality control checks for the metal detectors and geophysical instruments. Additional IVSs may be installed if it will improve productivity.
- Teams of UXO technicians will conduct a systematic survey of the site using metal detectors to identify and remove MEC on the ground surface or partially buried in each grid. MD and other surface metal will be removed to reduce surficial metallic interference during the subsurface geophysical survey. High levels of interference may degrade the performance of the AGC sensors.
- Geophysicists will conduct DGM/AGC surveys over each grid.



- Geophysicists will process and analyze the data from the geophysical surveys to identify anomalies in the subsurface identified as TOI. Anomalies with an uncertain source will be identified as 'Can't Analyze.' Anomalies caused by scrap metal are likely to be classified as non-TOI.
- All TOI and targets that can't be analyzed will be placed on a dig list for investigation. Some non-TOI will also be placed on the dig list for quality control and validation.
- Teams of UXO technicians will reacquire the location of each target on the dig list and dig until they recover the source of the anomaly.
- Some areas may be deemed inaccessible due to obstructions such as beneath large diameter trees, water bodies, or existing structures preventing the implementation of the remedy. Intrusive investigation beneath paved areas could be accessed with approval from the landowner. For example, after identifying a TOI under a driveway, the owner may allow UXO technicians to remove the pavement and the item, after which the pavement would be replaced a no cost to the landowner.
- After clearing the target, the excavation will be swept with a geophysical sensor to ensure no other anomalies are present below the hole.
- All recovered MEC will be destroyed by blowing in place or, if it is safe to move, in a consolidated shot at MRS 7. No public roads will be used in the transport of MEC.
- Each excavation will be backfilled and replanted or reseeded as necessary.
- Detonations will be conducted with sandbags and tamping to control and minimize the impact of the detonation.
- All metal remaining from demolitions shots and MD found during site field work will be demilitarized if needed and consolidated into sealed containers. These will be transported off site to a qualified metals recycling facility.
- LUCs will be implemented in inaccessible areas where a MEC hazard may remain such as under the footprint of structures and other inaccessible areas or areas with ROE restrictions/no ROE. Instances of denied ROE will be formally documented in accordance with USACE policy.
- USACE anticipates Alternative 5 will be implemented within 3 years of approval of this DD.
- Portions of MRS 7 are designated as potential critical habitat for the Houston toad, and incidental takes could occur during surface clearance or during detonation of MEC. The incidental takes are not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat as the terms and conditions of the Biological Opinion from U.S. Fish and Wildlife Service (Consultation No. 21450-2011-F-0105, Appendix F of the RI/FS) will be followed and implemented. Some of the reasonable and prudent measures include utilization of existing roads and trails, avoiding environmentally sensitive areas to the extent practicable to include wetlands and deep sands, preserve existing trees, and limit vegetation clearance to use of a machete and clearing of limbs less than 1-in diameter. Each excavation will be backfilled and replanted or reseeded as necessary, and detonations would be conducted with sandbags and tamping to control and minimize the impact of the detonation. In addition, the Biological Opinion proposed potential funding of the permanent protection of the Houston toad habitat through the Griffith League Ranch Conservation Bank.



Measurement performance criteria (MPC) will be developed to achieve the clean-up goal as part of the RA Quality Assurance Project Plan in compliance with the version of EM 200-1-15 published at the time work is performed. The effectiveness of MEC detection and removal will be evaluated against those MPCs and the MEC removal will be considered complete once the MPCs have been achieved.

Following the MEC removal, potential residual risks from MEC in inaccessible areas or areas of denied ROE will be managed by conducting periodic educational public meetings and providing periodic educational fact sheets on the 3Rs Explosives Safety Education Program to the community and to landowner(s) and residents on parcels in areas that may still have MEC hazards. Through these LUCs the link to the 3Rs website will be shared with the community. Areas where MEC may still be present will not achieve an UU/UE end state.

The remedy will be considered complete when (1) the MEC removal described above is complete, (2) the first public educational meeting is held and (3) the initial educational fact sheets are mailed.

2.12.3 Cost Estimate for the Selected Remedy

The cost estimate summary in Table 2.12–1 below is based on the best available information regarding the scope of the Selected Remedy. The TPV for the Selected Remedy is \$2,572,000 measured in 2021 dollars. This cost estimate may change as a result of new information. Major changes will be documented in a memorandum in the Administrative Record file, an Explanation of Significant Difference, or a DD amendment. This is an order-of-magnitude cost estimate that is expected to be within +50 to -30 percent of the actual project cost.

Table 2.12–1: Cost Estimate Summary for the Selected Remedy at MRS 7

Task	Cost
Management	\$71,065
Explosive Safety Submission	\$43,730
Institutional Controls	\$62,984 ⁽¹⁾
Surface Clearance Plans	\$35,882
Surface Clearance	\$836,511
Subsurface Clearance	\$1,453,478
Final Report	\$38,822
5-Year Review	\$18,377 ⁽¹⁾
Total: Implementation and O&M Cost	\$2,560,849
Total: Implementation Cost	\$2,479,488 ⁽¹⁾
Total in 2021 Dollars	\$2,572,000

Notes:

Cost based on the final RI/FS Appendix K (TtEC, 2015).

(1) Institutional Controls and 5YR are O&M costs. The cost of implementation of the Selected Remedy and O&M are summed separately from the implementation costs.



2.12.4 Expected Outcomes of the Selected Remedy

The completion of the Remedial Action would result in a significant reduction in MEC hazards; however, some munitions may remain in place if they are located in areas of denied ROE or are inaccessible to geophysical surveying or removal. LUCs will address the risk to users from MEC that may remain in areas not cleared by the remedy. Following the implementation of the Selected Remedy at MRS 7, the land uses at the MRS are expected to remain the same.

If the remedy can be applied to the entire site, including the anticipated inaccessible areas, and ROE provides 100% unrestricted access, all MEC will be removed from MRS 7. Since no hazardous substances will remain at the site above levels that allow for unlimited use and unrestricted exposure, LUCs and 5YR would not be required. USACE will perform a post-remediation assessment of the site. If UU/UE has been achieved documentation to that effect will be prepared for stakeholder review. However, based on the presence of homes, buildings, and underground utilities, it is likely some areas of MRS 7 will be inaccessible. Therefore, it is considered unlikely that the performance of this Alternative will achieve an UU/UE risk designation over the entire site.

There are no socioeconomic or community revitalization impacts anticipated as a result of implementing the Selected Remedy. No environmental or ecological benefits (such as restoration of sensitive ecosystems, protection of endangered species, protection of wildlife resources, or wetlands restoration) are anticipated as a result of implementing the Selected Remedy.

2.13 STATUTORY DETERMINATIONS

The Selected Remedy for MRS 7, Surface and Subsurface Removal of MEC to 3-ft bgs using Digital EMI Systems in conjunction with Advanced Geophysical Classification with Land Use Controls, is protective of human health and the environment and satisfies the statutory requirements of CERCLA §121(b) with regard to the former use of the MRS by the U.S. Army and DoD.

CERCLA requires a review be conducted at least every 5 years at sites where an action has been selected which results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure. Since MEC may remain in areas of denied ROE or inaccessibility, 5YR will be required at MRS 7. The first 5YR will be performed within 5 years of the date of initiation of onsite construction of the remedy.

The Selected Remedy is cost-effective and utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable. USACE will comply with applicable ARARs in implementing the remedy. ARARs include the Endangered Species Act regarding the endangered Houston toad and 40 CFR 264 Subpart X regarding residual compounds from MEC disposal activities.

2.14 DOCUMENTATION OF SIGNIFICANT CHANGES FROM PREFERRED ALTERNATIVE OF PROPOSED PLAN

There are no significant changes to Alternative 5D as presented in the Proposed Plan. Note the remedial alternatives in the Proposed Plan were titled to reference the depth of removal of MEC hazards. This DD updates those alternatives to clarify that if MEC is identified below the stated removal depth it will be removed with in accordance with best practices and USACE policy [EM 385-1-97 and EM 200-1-15].



PART 3: RESPONSIVENESS SUMMARY

This Responsiveness Summary presents all comments on the *Final Proposed Plan for Camp Swift* (USACE, 2015) that USACE received from stakeholders and the public regarding the Selected Remedy.

3.1 STAKEHOLDER ISSUES AND LEAD AGENCY RESPONSES

3.1.1 Regulatory Concurrence and Comment

The RI/FS (TtEC, 2015), and the Proposed Plan (USACE, 2015) were submitted to TCEQ for review and comment. The TCEQ formally concurred with the findings and recommendations in the RI/FS and the Proposed Plan. The comments on the RI/FS provided by TCEQ and the resolved responses are provided in Appendix U of the RI/FS (TtEC, 2015). The comments on the Proposed Plan provided by TCEQ and the resolved responses are provided as Attachment 4 of this DD and are summarized below.

A comment was concerned with the inclusion of LUCs in Alternatives 4D and 5D. The comment was resolved with the clarification that these alternatives would be paired with Alternative 2 LUCs.

Another comment requested clarification of LUCs for the selected alternative for MRS 3 – 8. It was clarified that LUCs were included in the preferred alternatives.

Finally, the TCEQ requested additional clarification about legal mechanism associated with LUCs. The text was revised to clarify as follows: “Regulation of land (zoning and deed restrictions) use has not been legislatively delegated to Bastrop County, as such LUCs are reduced to institutional controls and Alternative 2 includes the implementation of a public outreach and education program to provide information to educate the public on the hazards associated with MEC.” The TCEQ concurrence on the DD is included as Attachment 1.

3.1.2 Public Comment

The USACE also made the Proposed Plan for the Former Camp Swift available for public comment between October 16 and November 16, 2015. This public comment period was announced through a notice placed in the *Austin American Statesman* newspaper (Attachment 2). A hard copy of the Proposed Plan was provided at the Bastrop County Library. In addition, a public meeting was held on October 29, 2015, at the Lost Pines Scout Reservation (Lindsay Lodge 785 FM 1441, Bastrop, TX 78602). The agenda for the public meeting was to present the summarized results of the RI, describe the alternatives considered, and to present the alternative preferred by USACE and TCEQ.

No members of the public attended the October 29, 2015, public meeting and there were no written questions submitted during the public comment period. A notice from the Camp Swift team was transcribed by a court recorder, and a copy of the transcript is included in the October 29, 2015, Meeting Summary, which is part of the Administrative Record at the Bastrop County Library, Bastrop, Texas and included in Attachment 3.

3.1.3 Decision Document Availability

After the DD is signed, USACE shall publish a notice of the availability of the DD in the *Austin American Statesman* and make the DD available for public inspection and copying at the Bastrop Public Library (1100 Church St, Bastrop, TX 78602) prior to beginning the Remedial Action.



3.2 TECHNICAL AND LEGAL ISSUES

There were no significant technical or legal issues raised in the process of developing this DD.



PART 4: REFERENCES

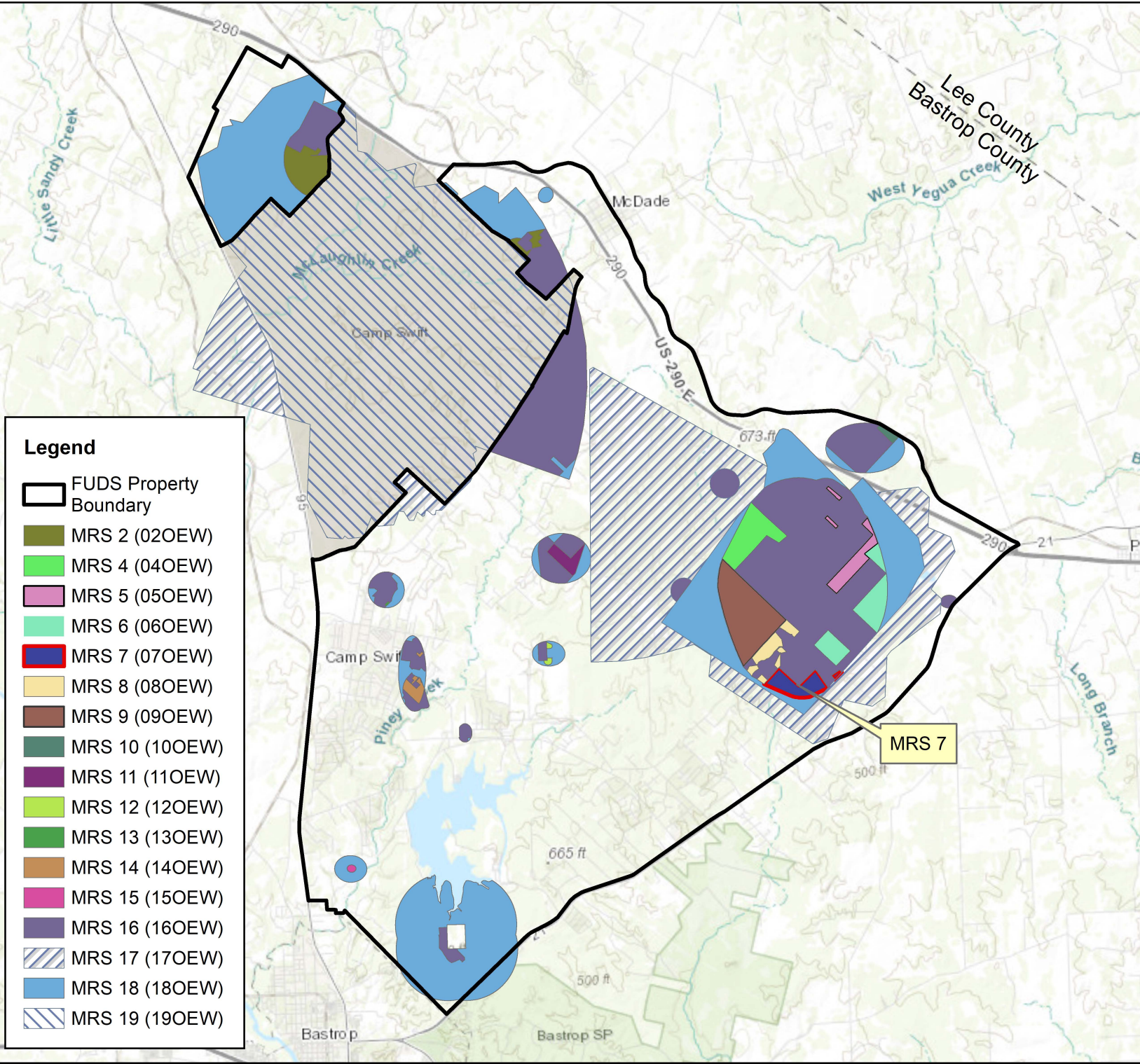
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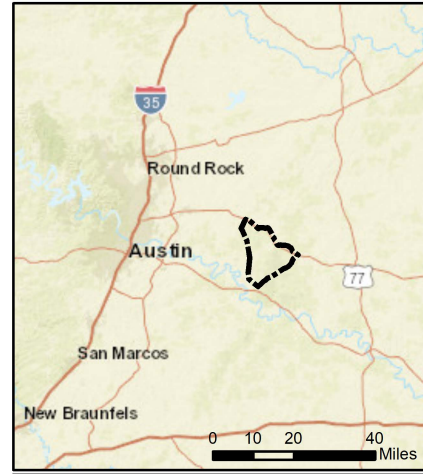
APPENDIX A

Figures

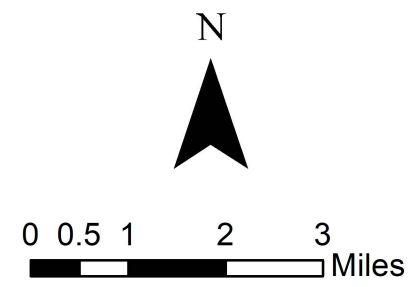
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- Legend**
- FUDS Property Boundary
 - MRS 2 (02OEW)
 - MRS 4 (04OEW)
 - MRS 5 (05OEW)
 - MRS 6 (06OEW)
 - MRS 7 (07OEW)
 - MRS 8 (08OEW)
 - MRS 9 (09OEW)
 - MRS 10 (10OEW)
 - MRS 11 (11OEW)
 - MRS 12 (12OEW)
 - MRS 13 (13OEW)
 - MRS 14 (14OEW)
 - MRS 15 (15OEW)
 - MRS 16 (16OEW)
 - MRS 17 (17OEW)
 - MRS 18 (18OEW)
 - MRS 19 (19OEW)



Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community



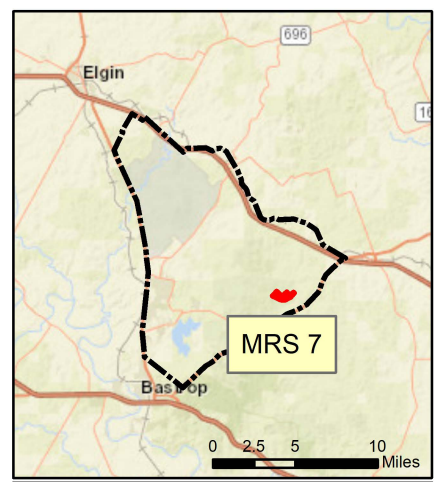
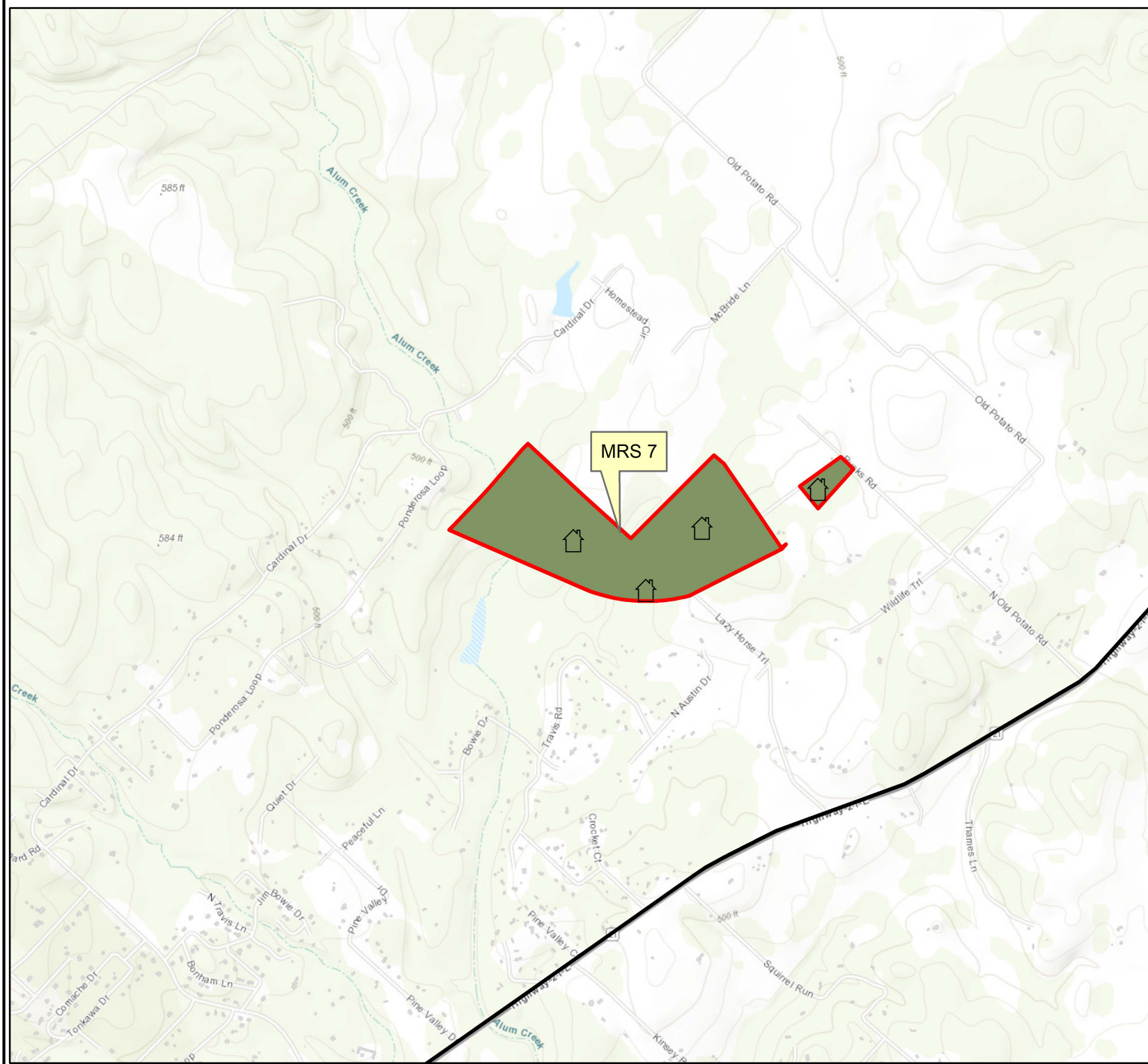
The KBCRS Site Identifier is the Federal Facility Identification (FFID) number combined with the environmental site identifier (noted in parenthesis in the Legend).



FUDS PROPERTY NO. K06TX030407
FFID: TX69799F668500




Figure 1.1-1:
Site Location Map for
Camp Swift
Munitons Response Site 7

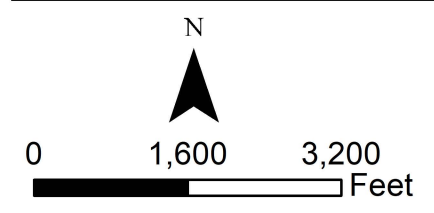
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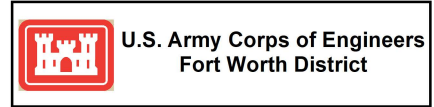
Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

Legend

-  FUDS Property Boundary
-  MRS 7 (07OEW)
-  Generalized Location of Residential Structures on MRS



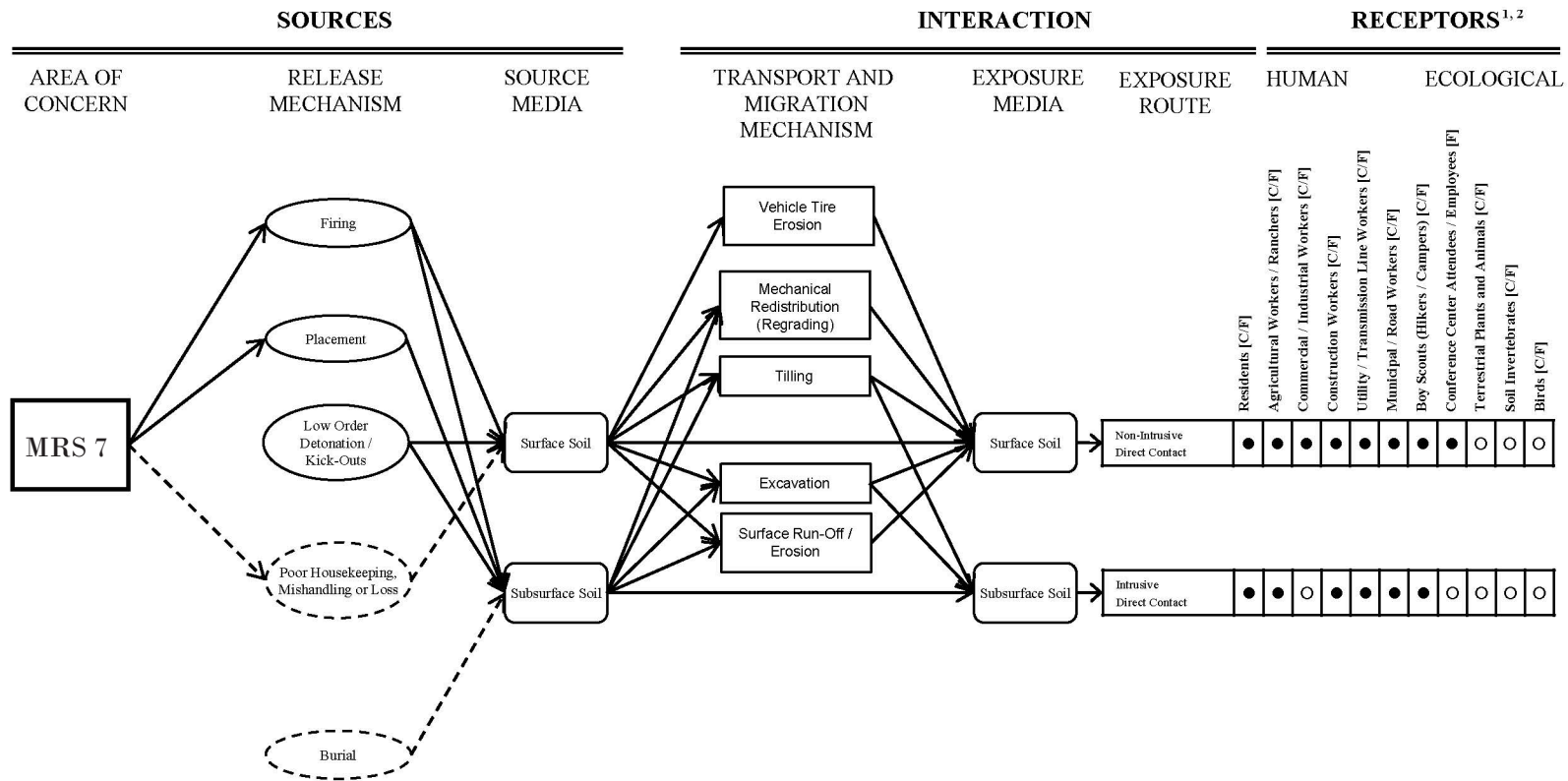
The KBCRS Site Identifier is the Federal Facility Identification (FFID) number combined with the environmental site identifier (noted in parenthesis in the Legend).



**FUDS PROPERTY NO. K06TX030407
FFID: TX69799F668500**

**Figure 2.1-1:
Camp Swift
Munitions Response Site 7**

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EXPOSURE PATHWAYS KEY

- Complete pathway
- Incomplete pathway
- Observed component or linkage
- - - Possible component or linkage

NOTES:

1. C = Current Receptor; F = Potential Future Receptor
2. Pathways indicated as "Complete" are complete for the MRS where MEC or MD has been found (i.e., those Areas of Concern with heavy or light solid Area of Concern boxes)

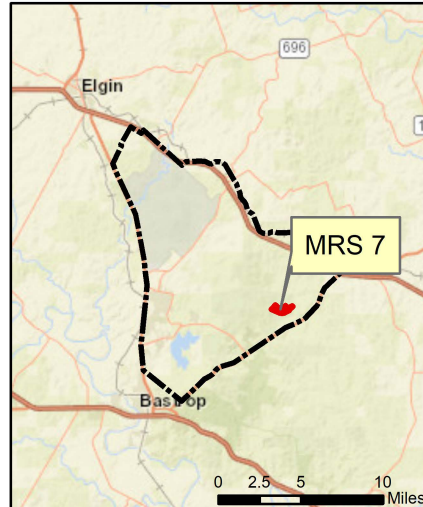
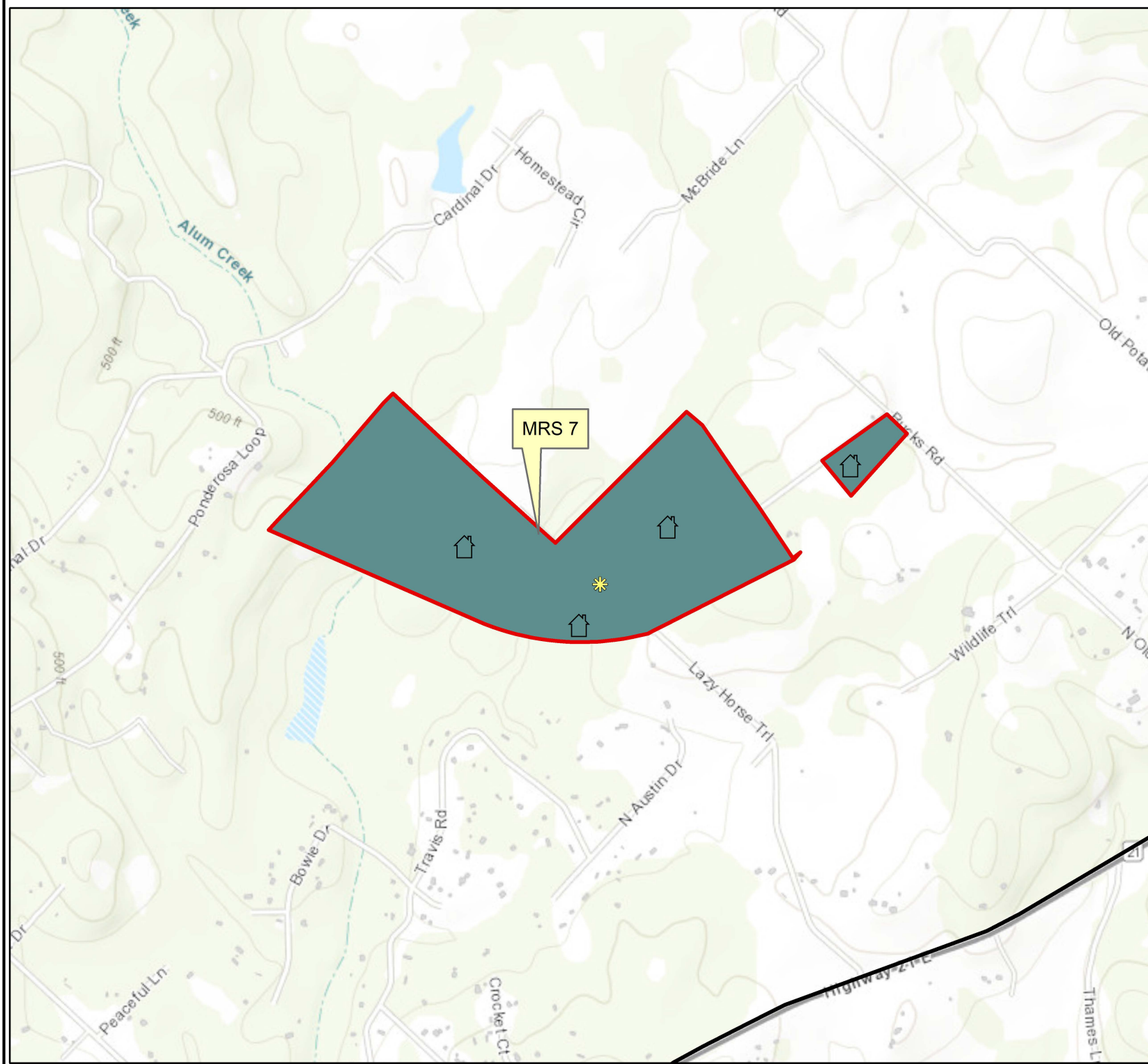


U.S. Army Corps of Engineers
Fort Worth District

FUDS PROPERTY NO. K06TX030407
FFID: TX69799F668500





**Figure 2.5-1:
Conceptual Site Model,
Munitions Response Site 7**

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Legend

-  FUDS Property Boundary
-  MRS 7 (070EW)
-  MD, (Rocket)
-  Generalized Location of Residential Structures on MRS

N



0 1,000 2,000



Feet

The KBCRS Site Identifier is the Federal Facility Identification (FFID) number combined with the environmental site identifier (noted in parenthesis in the Legend).

 **U.S. Army Corps of Engineers**
Fort Worth District

FUDS PROPERTY NO. K06TX030407
FFID: TX69799F668500
Figure 2.5–2:
Nature and Extent of Munitions and Explosives of Concern at Munitions Response Site 7

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ATTACHMENT 1

**Texas Commission on Environmental Quality
Concurrence of Decision Document**

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Jon Niermann, *Chairman*
Emily Lindley, *Commissioner*
Bobby Janecka, *Commissioner*
Toby Baker, *Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

August 15, 2022

Transmitted via email

Ms. Sherell Heidt,
FUDS Project Manager
Department of the Army, US Army Corps of Engineers
RPEC
2000 Fort Point Rd.,
Galveston, Texas 77500

Re: Approval with Comment
Draft-Final Decision Document (DD), Munitions Response Site (MRS) 7: Main Artillery Range and Impact Area/Buffer Zone, Former Camp Swift, Bastrop County, dated July 25, 2022
Former Camp Swift, FUDS MMRP sites, Bastrop, Bastrop County, Texas
TCEQ ID No. T1626; CN600918916; RN104662960

Dear Ms. Heidt:

The Texas Commission on Environmental Quality (TCEQ) has completed review of the above referenced Draft Final DD for the MRS 7 Area. MRS 7 was formerly identified as part of larger MRS East. MRS East was subdivided into smaller MRSs, one of which was identified as MRS 2c which is now referred to as MRS 7 in the Remedial Investigation/Feasibility Study (RI/FS) and Proposed Plan (PP) approved by the TCEQ on August 22, 2018. MRS 7 consists of 146-acre tract of the former range complex. Results of the RI/FS documents presence of munitions explosive of concern (MEC) and munitions debris (MD), consisting or primarily of 75- and 105- millimeter projectiles, practice antitank mines, mortars, rocket, and artillery projectile located at depths up to 3 feet below grade at MRS 7. Sections 2.10 through 2.12 of the July 25, 2022, DD for this MRS describes Alternative 5D, which includes: (a) subsurface MEC removal to 3 feet using Digital EMI Systems, (b) Advanced Classification, (c) land use controls (LUCs), and (d) 5-year review(s).

The TCEQ approves the DD for the MRS 7 Area with the following comment: In addition to the LUCs outlined in the DD, the TCEQ concurs that the Corps should continue to maintain an updated public information web page specific to Camp Swift with information on the munitions 3 Rs (e.g. Recognize, Retreat, Report); and, the landowner notifications should be filed with the county deed for those areas containing MEC hazard. However, the TCEQ believes that the Corps understands the TCEQ's position concerning the inconsistencies in education and 5-year review when it comes to property notification, ownership, transfers, and health and safety. The TCEQ believes that a more consistent notification process involving formal institutional controls (deed notice restrictive covenant) should be used.

Ms. Sherell Heidt
Page 2
August 15, 2022
TCEQ ID No. T1626

Questions concerning this letter should be directed to me at (512) 239-2034. When responding by mail, please submit one paper copy and one electronic copy (on USB or disc) of all correspondence and reports to the TCEQ Remediation Division at Mail Code MC-127. An additional copy should be submitted in electronic format to the TCEQ Tyler Regional Office (Region 5). The information in the reference block should be included in all submittals. Note that the electronic and hard copies should be identical, complete copies. A Correspondence ID Form (TCEQ Form 20428) must accompany each document submitted to the Remediation Division and should be affixed to the front of your submittal. The Correspondence ID Form helps ensure that your documents are identified correctly and are routed to the applicable program for a timely response

Sincerely,

A handwritten signature in blue ink, appearing to read "Maureen Hatfield".

Maureen Hatfield, P.G., Project Manager
VCP-CA Section, Remediation Division
Texas Commission on Environmental Quality

MMH/mmh

cc: Mr. Elijah Gandee, TCEQ Waste Section Manager, Austin Regional Office, MC-R11
(email)

ATTACHMENT 2

Announcement of Public Notice

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Austin American-Statesman

statesman.com | austin360.com

PUBLIC SERVICE ANNOUNCEMENT

The U.S. Army Corps of Engineers invites you to review and comment on the Proposed Plan associated with the Remedial Investigation and Feasibility Study at the Former Camp Swift Formerly Used Defense Site in Bastrop County, Texas. The Former Camp Swift was founded in 1942 and the areas investigated consisted of a range complex comprising overlapping small arms ranges, grenade courts, a mortar range, artillery impact areas, training maneuver areas, and a demolition area. The U.S. Army Corps of Engineers has recently completed a study of the Former Camp Swift concerning potential military munitions and alternatives for further action.

Copies of the Remedial Investigation/Feasibility Study and Proposed Plan are available for public review in the Bastrop Public Library 1100 Church St, Bastrop, TX 78602. Comments on the Proposed Plan will be accepted beginning, October 16 – November 16, 2015.

Written comments may be submitted by mail, postmarked no later than November 16, 2015 at the following address: ATTN: Mr. Steve Martin US Army Corps of Engineers, CESWF-PECTE 819 Taylor Street, Suite 3A12 Fort Worth, Texas 76012. Public comments received during this period will be considered in the final decision-making process for Former Camp Swift.

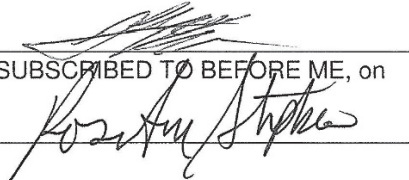
The U.S. Army Corps of Engineers will hold a public meeting to explain the Proposed Plan. Oral and written comments will be accepted at the meeting. The meeting will be held at the Lost Pines Scout Reservation: Lindsay Lodge 785 FM 1441, Bastrop, TX 78602. The meeting will occur on 29 Oct 2015 between 6:00 p.m. and 8:00 p.m.

For more information, please contact the Steve Martin of the U.S. Army Corps of Engineers, Ft. Worth District, at Steven.G.Martin@usace.army.mil.

#485074 10-11/2015

SWORN AND SUBSCRIBED TO BEFORE ME, on
10/14/2015

Notary Public



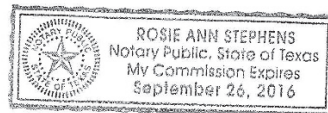
STATE OF TEXAS
COUNTY OF TRAVIS

Before me, the undersigned authority, a Notary Public in and for the County of Travis, State of Texas, on this day personally appeared Alejandro Cado. Advertising Agent of the Austin American-Statesman, a daily newspaper published in said County and State that is generally circulated in Bastrop, Bell, Blanco, Brazos, Burleson, Burnet, Caldwell, Colorado, Comal, Coryell, Fayette, Gillespie, Gonzales, Guadalupe, Hays, Kerr, Lampasas, Lee, Llano, Milam, Nueces, San Saba, Travis, Washington and Williamson Counties, who being duly sworn by me, states that the attached advertisement was published at the lowest published rate for Classified advertising in said newspaper on the following date(s), to wit: TETRA TECH,, First date of Publication 10/11/2015, Last date of Publication 10/11/2015, Web and print times Published 2, Legal Notices, 1 X 51, and that the attached is a true copy of said advertisement.

CAMP SWIFT

Ad ID: 922709

Ad Cost: 741.54



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ATTACHMENT 3

Transcript of Public Meeting for the Proposed Plan

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ORIGINAL

CERTIFICATE OF PUBLIC MEETING

RE: PROPOSED PLAN FOR PROPERTIES ASSOCIATED WITH CAMP
SWIFT RANGE COMPLEX, BASTROP COUNTY, TEXAS

USACE Fort Worth District
US Army Engineering and Support Center, Huntsville
Bastrop, Texas
October 29, 2015

Job No. 04-69647



1 I, JAMES M. PLAIR, a Certified Shorthand Reporter in
2 and for the State of Texas, do hereby certify that a
3 PUBLIC MEETING was scheduled for Thursday, October 29,
4 2015, at 6:00 p.m. at the LOST PINES SCOUT RESERVATION,
5 785 FM 1441, Bastrop, Texas 78602.

6 On October 29, 2015, I was present at the LOST PINES
7 SCOUT RESERVATION, at the hour of 5:15 p.m. and did so
8 remain there until the hour of 7:15 p.m.

9 During the time between 5:15 p.m. and 7:15 p.m., the
10 PUBLIC MEETING was not held, at which time the following
11 record was adduced:

12 MR. BELEW: My name is Roland Belew and I'm
07:06 13 the Contract Manager out of Huntsville, and we did have a
07:06 14 public meeting scheduled for tonight. However,
07:06 15 unfortunately, no one showed up. So we -- For the record,
07:06 16 we want to state who all is present from the Government,
07:06 17 and also, if you would, state the -- the Texas regulator's
07:06 18 name. Bob, go ahead.

07:06 19 MR. SELFRIDGE: Bob Selfridge, Chief
07:06 20 Geophysicist, U.S. Army Engineering Support Center,
07:06 21 Huntsville.

07:06 22 MR. ROBERTS: Ian Roberts, Project Manager,
07:06 23 Tetra Tech.

07:06 24 MR. DOLLAR: Mark Dollar, Munitions
07:06 25 Response Program Manager with Tetra Tech.

07:06 1 MR. EDMONDSON: Clay Edmondson, Munitions
07:06 2 Response Project Manager with Tetra Tech.

07:07 3 MR. MARTIN: Thank you. I'm Steve Martin,
07:07 4 Engineer, Corps of Engineers, Fort Worth District. And
07:07 5 the lady who just left was Maureen Hatfield from the State
07:07 6 of Texas, and the abbreviation is TCEQ.

07:07 7 MR. BELEW: And we did wait an hour for
07:07 8 people to show up, a little more than an hour, and no one
07:07 9 has showed up. So we are going to shut everything down
07:07 10 and leave. Thank you.

11 (Record concluded)

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1 I, JAMES PLAIR, Certified Shorthand Reporter
 2 in and for the State of Texas, hereby certify that
 3 that the proceedings were taken in shorthand by me,
 4 later reduced to typewriting under my direction, and
 5 the preceding pages represent a true and accurate
 6 transcription of the proceedings.

7 I further certify that I am neither attorney nor
 8 counsel for, related to, nor employed by any of the
 9 parties to the action in which this proceeding was
 10 taken. Further, I am not a relative or employee of
 11 any party in this cause, nor do I have a
 12 financial interest in the outcome of this action.

13 SUBSCRIBED AND SWORN TO UNDER MY HAND on this the
 14 12th day of November, 2015.

15
 16
 17 James M. Plair
 18 JAMES M. PLAIR, CSR
 19 Texas CSR 4409
 20 Expiration: 12/31/2015
 21 CONTINENTAL COURT REPORTERS, INC.
 22 Firm Registration No. 61
 23 5300 Memorial Drive, Suite 250
 24 Houston, Texas 77007
 25 713.522.5080 Phone
 713.522.0440 Fax



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ATTACHMENT 4

**Texas Commission on Environmental Quality
Comments and USACE Responses on the Proposed Plan**

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TCEQ Comments on the Draft Final Proposed Plan for the Camp Swift Range Complex Munitions Response Sites

The Texas Commission on Environmental Quality (TCEQ) has completed technical review of the above referenced document provided to the Remediation Division on September 11, 2015. Based on our review, the TCEQ has the following comments:

1. During discussion of comments on the RI/FS the project team agreed to add LUCs to remedial alternatives 4d and 5d. This agreement wasn't carried through in the PP and the descriptions of these two remedial alternatives specifically exclude LUCs. Then, these two remedial alternatives are selected and Alternative 2 is also selected to supplement the two selected alternatives. TCEQ recommends implementing the agreement to include LUCs as part of alternatives 4d and 5d as this will implement our agreement and will also prevent errors as described in comment #3 below.

- a. **RESPONSE:** Alternatives 4d and 5d were evaluated as the UU/UE alternatives as required by CERLA thus they do not have LUCs incorporated into the alternative itself. In the RI/FS Section 9.5.2.11 contains the following language "Although Alternative 5d was developed as the UU/UE alternative, direct input from TCEQ requires further community outreach and may require the addition of Alternative 2. Responses to comments from TCEQ are provided in Appendix U. If Alternative 2 is paired with this Alternative and provides at least 0.5 foot of clearance below the expected or confirmed depth of MEC at that MRS and after the second 5-year review, the selected remedy is still protective and no additional action is warranted, then the remedy has met the criteria for UU/UE and no further 5-year reviews or LUCs will be required."

The proposed plan follows this language and the MRSs that are recommended for Alternative 5d also include Alternative 2 LUCs. This is shown in Table 3 and also explained in further in the paragraph below Table 3 "Although this Alternative (referring to Alt 5d) was evaluated as the UU/UE alternative because it provides a clearance an additional foot deeper than MEC was confirmed or anticipated, a public outreach component will be added. In addition to the subsurface removal, Alternative 2 (Land Use Controls) will also be implemented focusing on minimizing or controlling potential exposures to the public by informing them of the dangers and educating them on the procedures to follow to avoid and report discovered MEC."

TCEQ commented on this topic in the RI/FS and subsequent response are included below:

“Comment 11 (RI/FS): Unsupported statements are made concerning unlimited use/unrestricted exposure (UU/UE) in Section 9.7.7.1 and 9.7.11.1. TCEQ is unlikely to concur with this unrestricted land use as some type of LUCs (for example, a public information web site specific to Camp Swift with information on the 3Rs) is almost certain to be appropriate because it is not possible to ensure that all MEC hazards have been removed. Because of this Alternatives 4D and 5D should include LUCs.

Response: Agree, CERCLA requires a UU/UE alternative for evaluation and the PP requires further action in the form of landowner notifications (implementation of the DOD Interim Risk Management Plan) and education (3Rs) on a community wide scale. Alternative 2 (LUCs) will be included with Alternatives 4D and 5D. Sections 9.5.2.7 and 9.5.2.11 discuss the inclusion of Alternative 2 with Alternatives 4D and 5D. The Proposed Plan and Decision Document will indicate that the UU/UE selected alternatives require further action in the form of landowner notifications and public education.”

As stated in the response Alternative 2 was added to Alternative 5d in the proposed plan.

- b. All of the other alternatives (Alt 4a, 4b, 4c, 5a, 5b, and 5c) do include LUCs into the alternative because they were not evaluated as a UU/UE alternative.
2. There are numerous references to the MRS automatically reverting to UU/UE after one or two 5-year review cycles. TCEQ never agreed to this and requests removal of all of these references to automatic reversion to UU/UE. TCEQ is fully willing to consider agreeing to UU/UE at the time of each 5-year review and the USACE is welcomed to recommend UU/UE in the 5-year review report. But TCEQ will not concur with an automatic reversion to UU/UE because the decision to implement UU/UE is site specific and dependent on site conditions at the time. For example, as Bastrop was recently subjected to intense flooding it may be prudent to extend the implementation of LUCs for another 5-year cycle if another major flooding event occurs and there is concern that erosion has caused potential MEC to be closer to the surface. As shown in this example there may be reasons to not implement UU/UE and TCEQ doesn't want to be tied to an arbitrary decision to implement UU/UE at some specific future time. This automatic reversion to UU/UE was not discussed during the FS. However, TCEQ will consider the merit of implementing UU/UE that is made in a 5-year review report and these references to UU/UE should be changed to note that UU/UE may be recommended in the 5-year review if appropriate.

RESPONSE: The text has been revised to read as follows: “If after the second review, there is no unacceptable risk, the selected remedy is still protective, and no additional action is warranted, then USACE will recommend that the remedy has met the criteria for UU/UE and no further 5-Year Reviews will be required.”

3. Table 3 omits alternative 2 from the selected alternative for MRS 3 – 8. As noted in #1 above, TCEQ recommends adding LUCs to alternatives 4d and 5d. Either implement the recommendation in #1 above or add alternative 2 to the selected alternatives for MRS 3 – 8 in this table.

RESPONSE: The preferred alternative for MRS 3-8 is Alternative 5B – *Subsurface Clearance to 1.5 Foot Using Digital EMI Systems in Conjunction with Advanced Classification with LUCs*. This alternative already includes LUCs because it was not evaluated as a UU/UE alternative and does not require to be paired with Alternative 2 LUCs.

4. The description of alternative 2 on Page 13 says, “Due to Texas laws, LUCs are reduced to institutional controls”. Please reference the specific law being discussed and include a discussion of it in the section on ARARs.

RESPONSE: Bastrop County Commissioners were contacted again and clarified that there wasn't a law that prohibited them from zoning and deed restrictions but there was legislation granting them authority for zoning and deed restrictions. From the Bastrop County Commissioners office “state agencies and political subdivisions (like Bastrop County) only have the specific powers legislated to them. Regulation of land use has not been legislatively delegated to counties.”

The text has been revised to read as follows “Regulation of land (zoning and deed restrictions) use has not been legislatively delegated to Bastrop County, as such LUCs are reduced to institutional controls and Alternative 2 includes the implementation of a public outreach and education program to provide information to educate the public on the hazards associated with MEC.”

A teleconference was held on 24 September 2015 to discuss the comments and responses.

Attendees:

TCEQ: Mareen Hatfield, James Pastorick, Bob Bone

USACE: Steve Martin, Roland Belew, Brett Frazier

Tetra Tech: Ian Roberts

Each of the comments and responses were discussed and concurrence was gained on each comment.