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HOLLOMAN AIR FORCE BASE, NEW MEXICO

ENTERED

10 September 2015

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RECEIVED

USEPA, Region 6 (6PD-F)
Attn: Mr. Chuck Hendrickson, Project Manager
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SEP 11 2015

NMED
Hazardous Waste Bureau

Dear Mr. Hendrickson,

Holloman AFB is pleased to submit the Draft-Final Non-Time Critical Removal Action Action Memorandum for FI857a Former Bunker Munitions Response Site, Holloman Air Force Base, NM.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions regarding this submittal, please contact me at (575) 572-3931.

Sincerely,

DEANNA ROTHHAUPT, GS-12, DAFC

Attachment:

Final Non-Time Critical Removal Action Action Memorandum for FI857a Former Bunker Munitions Response Site, Holloman Air Force Base, New Mexico. June 2015.

cc:

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FINAL

**NON-TIME CRITICAL REMOVAL ACTION
ACTION MEMORANDUM**

FI857a FORMER BUNKER MRS

**HOLLOMAN AIR FORCE BASE
NEW MEXICO
RCRA PERMIT NUMBER: NM6572124422**

**Performance Based Remediation
Contract Number: FA8903-13-C-0008**

Prepared for:



**AIR FORCE CIVIL ENGINEER CENTER
2261 Hughes Ave., Suite 163
Joint Base San Antonio Lackland, Texas 78236-9853**

September 2015

Prepared by:

FPM Remediations, Inc.

**584 Phoenix Drive
Rome, NY 13441**

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FI857a Former Bunker MRS

Non-Time Critical Removal Action Action Memorandum

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Site:

FI857a Former Bunker MRS
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LIST OF ABBREVIATIONS AND ACRONYMS

%	percent
AAR	After Action Report
AFB	Air Force Base
AFCEC	Air Force Civil Engineer Center
ARAR	Applicable or Relevant and Appropriate Requirements
ATF	Alcohol, Tobacco, Firearm and Explosives
BIP	Blow-in-Place
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CSA	Courtesy Storage Agreement
CSE	Comprehensive Site Evaluation
CWM	Chemical Warfare Material
DDESB	Department of Defense Explosives Safety Board
DGM	Digital Geophysical Mapping
DoD	Department of Defense
EE/CA	Engineering Evaluation/Cost Analysis
EM	Engineering Manual
EOD	Explosives Ordnance Disposal
ESS	Explosives Safety Submission
FPM	FPM Remediations, Inc.
G-858	Geometrics Cesium Vapor magnetometer G-858
GIS	Geographic Information System
GPS	Global Positioning System
GSV	Geophysical System Verification
HDR	HDR Environmental, Operations and Construction, Inc.
IVS	Instrument Verification Strip
LOD	Limit of Detection
LUC	Land Use Controls
MC	Munitions Constituents
MD	Munitions Debris
MDAS	Material Documented as Safe
MDEH	Material Documented as an Explosive Hazard
MEC	Munitions and Explosives of Concern
mg/kg	milligram per kilogram
MHAT	MEC Hazard Assessment Tool
mm	millimeter
MMRP	Military Munitions Response Program
MPPEH	Material Potentially Presenting an Explosive Hazard
MRA	Munitions Response Area
MRS	Munitions Response Site
MRSP	Munitions Response Site Prioritization Protocol
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NEW	Net Explosive Weight
NFA	No Further Action

LIST OF ABBREVIATIONS AND ACRONYMS (continued)

NMED	New Mexico Environment Department
NPL	National Priority List
NTCRA	Non-Time-Critical Removal Action
PM	Project Manager
PRSC	Post Removal Site Control
QC	Quality Control
RSL	Regional Screening Level
RTK	Real-Time Kinematic
SARA	Superfund Amendments and Reauthorization Act
SDA	Safe Disposal Area
SSL	Soil Screening Level
TBC	To Be Considered
U.S.	United States
USACE	United States Army Corps of Engineers
USAF	U.S. Air Force
U.S.C.	United States Code
USEPA	United States Environmental Protection Agency
UXO	Unexploded Ordnance
WP	Work Plan
XRF	X-Ray Fluorescence

1.0 PURPOSE

The purpose of this Action Memorandum is to request and document the approval of the selected Non-Time-Critical Removal Action (NTCRA) addressing the hazards associated with Munitions and Explosives of Concern (MEC)/Material Potentially Presenting an Explosive Hazard (MPPEH) that may be present at the FI857a Former Bunker Munitions Response Site (MRS) at Holloman Air Force Base (AFB), New Mexico. The NTCRA proposed in this Action Memorandum includes surface and subsurface removal of MEC/MPPEH from the entire MRS. The MEC/MPPEH present on the surface and subsurface of the ground of the MRS pose a potential and avoidable threat to public health and welfare. The removal of these items will prevent or mitigate potential human hazards associated with these items, which may be present due to past military munitions use of the property.

This Action Memorandum was prepared according to the guidelines provided in the Superfund Removal Guidance for Preparing Action Memoranda (United States Environmental Protection Agency [USEPA], 2009). It is supported by the approved Final Engineering Evaluation/Cost Analysis (EE/CA) for the FI857a Former Bunker MRS (FPM Remediations, Inc. [FPM], 2014a). The Action Memorandum essentially presents the justification, scope, and costs for the proposed NTCRA.

The lead agency for this action is the United States Air Force (USAF). Participation of and cooperation with Federal, State, and local authorities and the local public will be solicited for the duration of this activity and for all environmental restoration activities at this MRS.

The remaining sections of this Action Memorandum are organized as follows.

Section 2: Site Background and Current Conditions - This section provides an overview of the site's history, its current characteristics, and the nature of contamination at the site.

Section 3: Threats to Public Health, Welfare, or the Environment, and Statutory and Regulatory Authorities - This section describes the nature of potential threats to public health or welfare, or threats to the environment that necessitated the removal action and will be addressed by it as related to appropriate statutory and regulatory authorities.

Section 4: Endangerment Determination - This section provides a statement classifying the threat from hazardous substances.

Section 5: Proposed Actions and Estimated Costs - This section describes the proposed actions, estimated costs, and project schedule. It also identifies the Applicable or Relevant and Appropriate Requirements (ARARs).

Section 6: Expected Change in the Situation, Should Action Be Delayed or Not Taken - This section describes any expected changes in the situation.

Section 7: Outstanding Policy Issues - This section discusses any outstanding policy issues not discussed previously, or specifies "None" if there were no other policy issues associated with the site.

Section 8: Enforcement - The enforcement strategy is described for administrative purposes in this section.

Section 9: Recommendation - This section includes recommendation for approval of the selected removal action.

Section 10: Authorizing Signatures - Include spaces for approval or disapproval signatures and dates.

Section 11: Provides a list of references used to develop this Action Memorandum.

2.0 SITE BACKGROUND AND CURRENT CONDITIONS

This section provides an overview of the site history and current conditions, and summarizes the results from previous MEC investigations. This information constitutes the background information used to identify and analyze response action alternatives for the site.

2.1. Site Location

Holloman AFB is located in south-central New Mexico, seven miles west of the city of Alamogordo in Otero County (**Figure 2-1**). Holloman AFB occupies approximately 50,763 acres of land and is adjacent to the much larger (2.2 million acre) White Sands Missile Range. A portion of the Base to the south is bordered by Route 70, which also runs roughly north-south and parallel to the eastern boundary of the Base. The southern portion of Holloman AFB contains the flight line, composed of a series of runways running north-south, east-west, and northeast southwest. The Main Base is located at the southeast corner of the installation, where Route 70 borders the site. The Main Base contains housing and administrative buildings. The West Area and the North Area refer to the improved areas around the original airfield (southeastern triangle formed by the runways). The High Speed Test Track runs north-south and is located northwest of the airfield. Access to Holloman AFB requires admittance through the security gate and there is a fence around the installation.

2.1.1. FI857a MRS Site Description and Operational History

The Former Bunker Munitions Response Area (MRA) 857 consists of 20.6 acres and is located approximately 3,280 feet east of Runway 22-16 and 1,300 feet north-northwest of a water tower (**Figure 2-1**). According to available historical information, the area is a historic storage bunker and suspected former security forces training area. The 1996 archaeological survey performed at this MRA (Sale et al., 1996a) identified bomb tail section, four missile casings, nine bomb casings, drone parts, and a 1942 .30-06 caliber cartridge within the remnants of a collapsed wooden tower. Laboratory of Anthropology Site Record describes the area as an “ammo storage (approx. 70 x 70 x 10’) hole” with ammunition boxes and approximately 350 .30-06 caliber cartridges along with wood posts, wire mesh, and a sawhorse.

Based on the results of the Comprehensive Site Evaluation (CSE) Phase II investigation, the Former Bunker MRA 857 was recommended to be split into two MRSs due to Munitions Debris (MD): FI857 encompassing 19.8 acres and FI857a encompassing 0.8 acres (**Figure 2-2**). FI857 MRS was recommended for No Further Action (NFA). The FI857a Former Bunker MRS contains small arms, hand grenade, and M38 practice bomb debris and is the focus of the upcoming NTCRA.

2.2. Site Characteristics

The FI857a MRS is currently unused and no future land use changes are anticipated. There are 716 buildings within a two-mile radius of the FI857a MRS, primarily to the south. These buildings include base residential housing, recreational, operational and mission support buildings, and buildings that support the flight line. No buildings and no known utilities are located at the MRS.

The FI857a MRS exhibits relatively flat topography and the vegetation is consistent with desert scrubland. There are no wetlands or surface water associated with the MRS and no rare, threatened or endangered species are expected to inhabit the area. There is no fencing or other

controls associated with FI857a; however, access to Holloman AFB requires admittance through the security gate and there is a fence around the installation. Therefore, access to this site is restricted for the general public, but is open to Base personnel, contractors, and Base residents. Trespassers can also access the area.

2.3. Previous Investigations

Military Munitions Response Program (MMRP) investigations conducted at the MRA 857 include:

- Modified CSE Phase I (Shaw Environmental, Inc., 2010), and
- CSE Phase II (HDR Environmental Operations and Construction, Inc. [HDR], 2013).

2.3.1. Modified CSE Phase I

Modified CSE Phase I was completed in 2010. Prior to the start of the CSE Phase I, no MRAs had been discovered at Holloman AFB and it was believed that there was a low probability of a significant number of MRAs being found at the Base. Therefore, the USAF has modified the CSE Phase I process by deferring some actions typically performed in a Phase I, to the CSE Phase II, if a Phase II is required. For this Modified CSE Phase I, it was determined that a Conceptual Site Model, Munitions Response Site Prioritization Protocol (MRSP), and Hazard Ranking System scoring elements were not required. The activities performed during the CSE Phase I included identification and review of data repositories located both on and off the installation, interviews with Base personnel, and visual surveys.

Modified CSE Phase I investigation at the Former Bunker MRA 857 included a visual survey. No evidence of MEC/MPPEH was identified. The remains of a wooden platform, wood debris, and piles of lumber were observed at the MRA.

2.3.2. CSE Phase II

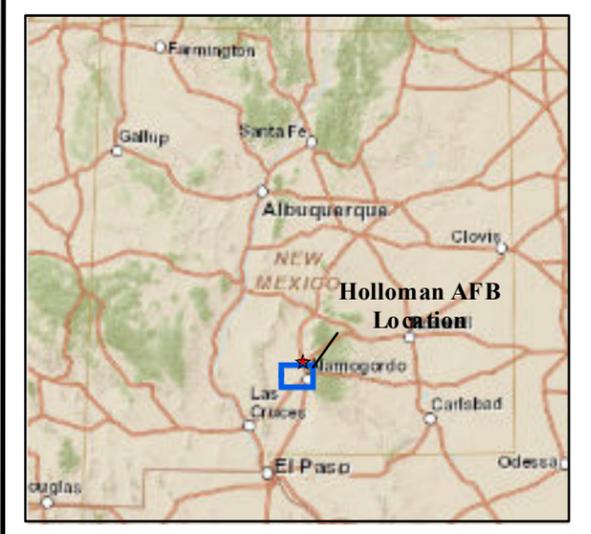
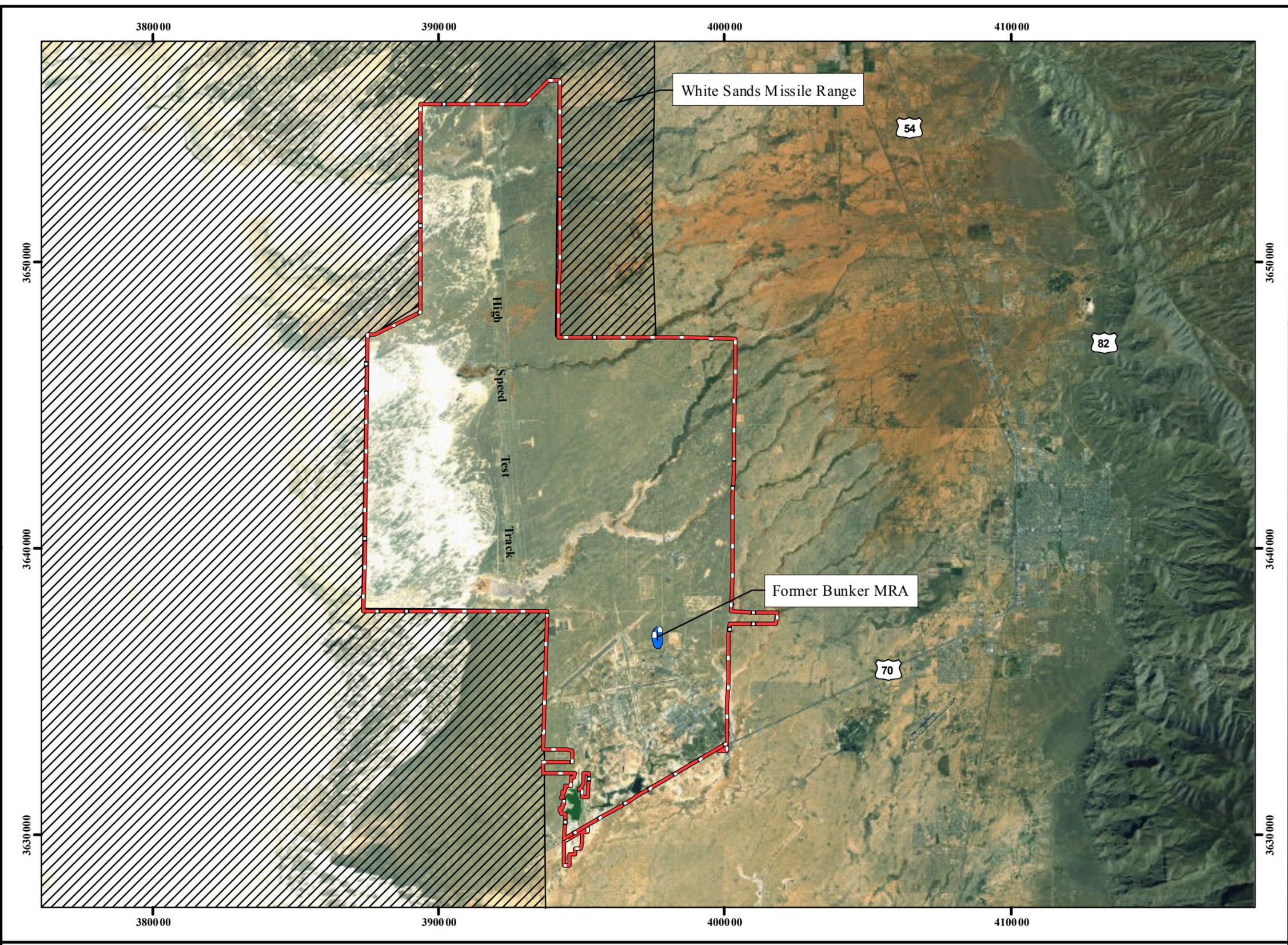
A CSE Phase II investigation was performed at the Former Bunker MRA 857 in 2012. The visual survey was conducted to identify the location and features of the area as well as to determine whether evidence of MEC is present at the MRA and whether Munitions Constituents (MC) (e.g., explosives) are present above regulatory screening levels.

Large amounts of wooden debris consistent with possible towers as well as one large rectangular area of wood debris from an unknown structure were observed during the visual survey. Two small depressions associated with wood and wire mesh debris were also documented.

Small arms debris identified at the MRA included .22, .32, 7.62 millimeter (mm), and .50 caliber casings, as well as a 7.62 mm link and a .50 cal link. MD consisting of a grenade pin, one (1) M38 practice bomb box fin, and nine (9) M38 practice bomb casings with no spotting charges present were observed at the area. These practice bombs were nearly intact with no damage and grouped together indicating that they were likely disposed of at the location. Other items of interest were four light fiberglass mock munitions, one displaying a bomb lug, lying near a wire mock aircraft. One (1) flight controller box, possibly from a drone aircraft, was also documented at the MRA. No MEC source was identified during the visual survey; therefore, no samples were collected for explosives analysis.

Thirty seven (37) surface soil samples were collected and analyzed for lead using X-Ray Fluorescence (XRF). Lead analysis results ranged from below the Limit of Detection (LOD)

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Legend
 Installation Boundary

Performance Based Remediation
 New Mexico-Arizona
 Holloman Air Force Base
 Alamogordo, NM
 AFCEC

FIGURE 2-1

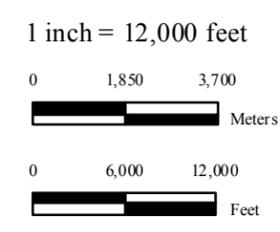
**Holloman Air Force Base
 Location**



NOTES:
 Revision Date: 4/8/2014

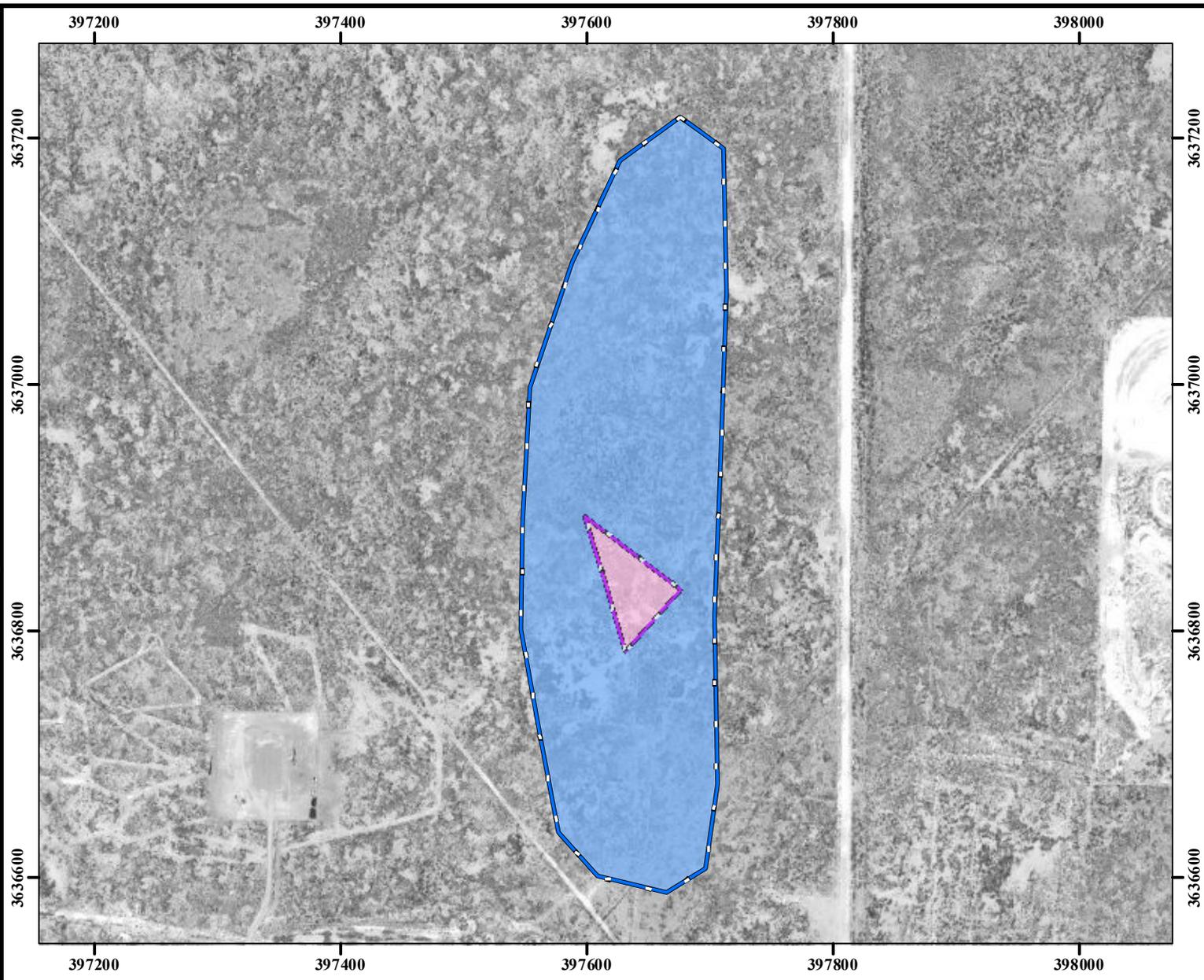
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 Projection: Transverse Mercator
 False Easting: 500,000.0000
 Central Meridian: -105.0000
 Latitude Of Origin: 0.0000
 Base Map Date: (c) 2010 Microsoft Corporation and its data suppliers
 Base Map Source: ESRI Online Bing Data Source

Horizontal Datum: North American 1983
 False Northing: 0.0000
 Scale Factor: 0.9996
 Units: Meter



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Legend

- Former Bunker MRA 857 (20.6 acres)
- FI857a Former Bunker MRS (0.8 acres)-EE/CA
- FI857 Former Bunker MRS No Further Action (19.8 acres)
- Installation Boundary

Performance Based Remediation
 New Mexico-Arizona
 Holloman Air Force Base
 Alamogordo, NM
 AFCEC

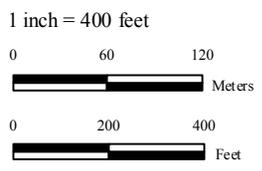
FIGURE 2-2

FI857a Former Bunker MRS Location

NOTES:
 Revision Date: 4/8/2014

Coordinate System: NAD 1983 UTM Zone 13N
 Projection: Transverse Mercator
 False Easting: 500,000.0000
 Central Meridian: -105.0000
 Latitude Of Origin: 0.0000
 Base Map Date: (c) 2010 Microsoft Corporation and its data suppliers
 Base Map Source: ESRI Online Bing Data Source

Horizontal Datum: North American 1983
 False Northing: 0.0000
 Scale Factor: 0.9996
 Units: Meter



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(12 milligram [mg]/kilogram [kg]) to 24 mg/kg. Of the 37 samples collected, 18 were below the LOD (12 mg/kg). No samples exceeded the screening level of 400 mg/kg. Soil samples from twelve (12) XRF locations (high, medium, and low concentrations in the data range, per Method 6200) from different CSE Phase II MRAs were sent for off-site laboratory analysis to evaluate the accuracy of the XRF analytical method. Out of these twelve (12) correlation samples one sample was taken from the MRA 857. The XRF and lab analytical results were plotted and compared using a linear regression process to measure slope. The correlation analysis based on all twelve (12) samples showed that data collected at the MRA 857 were acceptable for risk assessment purposes.

Based on results from the human health risk assessment it is unlikely that lead is associated with potential risks to current or future receptors at the MRA 857. Maximum and mean lead concentrations exceeded the Ecological Soil Screening Level for only the most sensitive receptor category, and were less than the 50th percentile lead background concentration for the western United States as reported in USEPA, 2005. Therefore, lead does not pose a potential ecological risk at the Former Bunker MRA.

Based on CSE Phase II visual survey results the MRA 857 was split into two MRSs (**Figure 2-2**): FI857 Former Bunker (19.8 acres) and FI857a Former Bunker (0.8 acres). MEC and MC above the level of concern were not identified at both sites; however, FI857a contains surface MD.

Both sites FI857 and FI857a were prioritized for funding based on relative risk, using the MRSPP scoring system. The MRS Priority is determined by selecting the highest rating from the Explosives Hazard Evaluation, Chemical Hazard Evaluation, and Human Health Hazard Evaluation modules and ranges from 1 to 8. Priority 1 and 8 indicate the highest and the lowest potential hazards, respectively. Only a site with a chemical warfare hazard can receive an MRSPP Priority of 1. FI857 obtained an MRSPP score of 8 and was recommended for NFA, while FI857a obtained an MRSPP score of 7 and was recommended for further munitions response action. The upcoming NTCRA will be performed at FI857a MRS.

2.4. Nature and Extent of Contamination

Munitions-related activities that have occurred at the FI857a Former Bunker MRS are the primary sources of potential MEC/MPPEH at this site. These activities may have resulted in the potential presence of MEC/MPPEH on and below the ground surface. Based on the most recent and most comprehensive evaluation of the FI857a MRS performed during the CSE Phase II, MD items consisting of a grenade pin, one (1) M38 practice bomb box fin, and nine (9) M38 practice bomb casings with no spotting charges present were observed on the surface within the MRS. Small arms debris including .22, .32, 7.62 mm, and .50 caliber casings, as well as a 7.62 mm link and a .50 caliber link were also observed at the site. No MEC items were identified at the site during the CSE Phase II (HDR, 2013). The data collected during the CSE Phase II indicates that MEC/MPPEH is potentially present anywhere within the MRS.

2.5. NPL Status

Neither the FI857a site nor Holloman AFB are on the National Priorities List (NPL) and have not been proposed for the NPL. However, the USAF is voluntarily performing this work in compliance with USEPA under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and

Reauthorization Act of 1986 (SARA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP).

2.6. Other Removal Actions

To date, no removal actions have been initiated at the FI857a MRS.

3.0 THREATS TO PUBLIC HEALTH, WELFARE, OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

As specified in **Section 2.4**, it was verified during the CSE Phase II that MPPEH in the form of MD is present at the FI857a Former Bunker MRS. Since no geophysical investigation was performed during the CSE Phase II, there is no information regarding the potential presence of the subsurface MEC/MPPEH at this site. Therefore, hazards are potentially present on and below the ground surface at FI857a MRS. Although the site is currently unused, it is relatively accessible to Base personnel and residents as well as contractors, visitors and trespassers. Threats to human health or the environment due to potential presence of surface and subsurface MEC/MPPEH, though not time-critical, are sufficiently serious that conditions at FI857a Former Bunker MRS meet the USEPA 40 Code of Federal Regulations (CFR) § 300.415(b)(2)(vi) - threat of fire or explosion - criterion for initiating a removal action.

Potential receptors are authorized Base personnel, authorized contractors, Base residents, visitors, and trespassers. Activities that would expose potential receptors include handle/tread underfoot and intrusive actions.

MEC/MPPEH items potentially present within the FI857a MRS could be contacted by persons legally or illegally traversing the area. The mishandling of MEC/MPPEH items could lead to unintentional detonation which could result in exposure of the individual to fire and explosive event. Effects on personnel caused by fire or explosion include death, burning injuries and injuries due to smoke inhalation, disabilities, and a variety of skin irritations generated by toxic and/or asphyxiating gases. Wildlife habitat could be destroyed by fire.

The proposed NTCRA at the FI857a MRS will protect human health and the environment by reducing both the contaminant levels and public exposure to formerly used munitions. Authorized and unauthorized personnel accessing the site will be protected from MEC/MPPEH items currently on the surface and in the subsurface.

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4.0 ENDANGERMENT DETERMINATION

Actual or threatened hazards associated with MEC/MPPEH on and below the ground surface at the FI857a Former Bunker MRS, if not addressed by implementing the response actions selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, or welfare, or the environment.

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5.0 PROPOSED ACTIONS AND ESTIMATED COST

The EE/CA for the FI857a MRS contains identification and analysis of response action objectives, comparative analysis of response action alternatives, and a response action recommendation. Based on the EE/CA assessment, the alternative recommended for the FI857a Former Bunker MRS is Alternative Four - Surface and Subsurface Removal of MEC/MPPEH.

5.1. Criteria and Evaluation of Alternatives

The three general categories, effectiveness, implementability, and costs, established by the NCP, were used in the EE/CA for FI857a MRS to evaluate different response action alternatives. Four alternatives considered are listed below.

Alternative One - No Action

Alternative One represents a true no-action scenario. Under this alternative, no control or active treatment of surface and subsurface MEC/MPPEH at the site would be performed. The MEC/MPPEH would remain in place. No Land Use Controls (LUCs) or monitoring would be implemented under this alternative. No cost would be associated with this alternative. As required by the NCP, this alternative is included in this evaluation as a baseline for comparison with the other alternatives.

Alternative Two – Land Use Controls

The LUCs alternative includes engineering controls (e.g., fencing and warning signage) and institutional controls (e.g., military orders preventing access to the MRS). Based on the suspected presence of MEC/MPPEH at FI857a MRS, the site's proximity to populated areas, and the relative ease of access for Base personnel and residents, engineering controls including physical barriers and signage would be required. As part of this alternative, fencing would be placed along the perimeter of the site and frequent signage would be put in place. The fencing would be constructed of 7-foot high chain link topped with barbed wire and would be constructed to restrict access to entire site. Signs identifying the area as having a MEC/MPPEH hazard would be placed every 100 ft along the fence line. Intrusive work would be required during fence installation; therefore, MEC avoidance would be required. An estimated 919 linear ft of fence and 10 warning signs would be installed as part of this alternative. If Holloman AFB transfers the land associated with the FI857a MRS, then LUCs including restrictions and a description of hazards present at the MRS would need to be incorporated into any real property documents necessary for transferring ownership from Holloman AFB.

Alternative Three – Surface Removal of MEC/MPPEH Combined with LUCs

The instrument-aided removal of all visible MEC/MPPEH would be performed in this alternative. The hand-held magnetic locators would be utilized during this effort. The use of metal detectors for surface clearance would not be warranted since non-ferrous munitions are not suspected to be present on the site. Following the completion of the surface clearance, brush clearing would be conducted across the entire area of the MRS. Brush clearing would be performed either using machinery such as a brush hog or forestry mower or by manual methods consisting of personnel on the ground using hand or power tools. Recovered MEC/MPPEH would be handled, stored, destroyed, and demilitarized in accordance with the guidance set forth in the Department of Defense Explosives Safety Board (DDESB)-approved Explosives Safety Submission (ESS) developed for the FI857a MRS. Discovered MEC/MPPEH would be detonated on-site, and all remaining MD and other metallic cultural debris items would be

moved to a central location and shipped to a recycling facility for disposal. Range related features would be removed except for the large range related structures that would be left in place.

Surface soil samples would be collected from areas containing isolated locations of confirmed MEC/MPPEH and in areas of significant amounts of MD using composite soil sampling techniques to determine the presence or absence of MC contamination (metals and explosives). In addition, MC soil sampling would be performed before and after Blown-In-Place (BIP) operations and consolidated shots. The New Mexico Environment Department (NMED) has recently revised its risk based Soil Screening Levels (SSLs) (NMED, 2014). USEPA also publishes Regional Screening Levels (RSLs) (USEPA, 2015). The more conservative of these two values (SSL and RSL) would be used as the risk-based screening level to determine whether MC contamination exists.

LUCs would be implemented upon completion of surface MEC/MPPEH removal to minimize potential exposure to potential subsurface MEC/MPPEH and to increase public awareness of the historical use and the potential for encountering MEC/MPPEH. LUCs would be comprised of educational and awareness programs for Base personnel and visitors that include but are not limited to:

- Notations of the suspected presence of subsurface MEC/MPPEH in the Base Real Property records, in the Installation General Plan, and in the Base Geographic Information System (GIS) land management system (Geobase) as well as written materials designed to raise community understanding and awareness of the hazards associated with subsurface MEC;
- Signs that warn the users of the former range of areas where they may encounter subsurface MEC.
- Already implemented dig permits at Holloman AFB prohibiting digging without construction support by Unexploded Ordnance (UXO) personnel would remain in place.

Alternative Four – Surface and Subsurface Removal of MEC/MPPEH

This alternative includes 100% surface removal of MEC/MPPEH and removal of the following subsurface anomalies:

- Those that show characteristics of burial pits and
- All individual geophysical anomalies above the established threshold based on the MRS background noise determined by an Instrument Verification Strip (IVS)/Geophysical System Verification (GSV).

In no case will any excavations and removals exceed 10 feet. In addition, if perimeter anomalies are found or if surface clearance and/or intrusive investigation results indicate the MEC/MPPEH presence beyond the MRS boundary, FPM will extend surface clearance and DGM investigation to determine the extent of contamination.

The MRS would undergo a 100 percent (%) surface clearance as outlined for Alternative 3 and a 100% Digital Geophysical Mapping (DGM) coverage using Geometrics Cesium Vapor magnetometer G-858 (G-858) coupled with the Real-Time Kinematic (RTK) Global Positioning System (GPS). The suspected munition items for FI857a MRS are grenades and M38 practice bombs. Both the M38 bomb and hand grenade are composed of ferrous metal components which

makes both electromagnetic induction sensors (EM61-MK2) and magnetometers (G-858) potentially appropriate for the subsurface clearance. However, since FI857a MRS had not been used as a bombing range, the anticipated MEC/MPPEH in the subsurface of the site could have been buried on site at any depth. In general, G-858 is used for detection of munitions located at greater depths; therefore, G-858 would be used for detection of subsurface anomalies.

All DGM anomalies identified for intrusive investigation would be removed using both manual removal techniques (e.g., shovels, hand equipment) and earth moving machinery. Recovered MEC/MPPEH would be handled, stored, destroyed, and demilitarized in accordance with the guidance set forth in the DDESB-approved ESS developed for the FI857a MRS. The excavated MEC for which the risk of movement beyond immediate vicinity of discovery is not considered acceptable would be BIP. MEC for which the risk of movement has been determined to be acceptable either within a current working sector or at an establish demolition ground would be disposed by consolidated shot.

Surface and subsurface soil samples would be collected from areas containing isolated locations of confirmed MEC/MPPEH and in areas with significant amounts of MD using composite soil sampling techniques to determine the presence or absence of MC contamination (explosives and metals). In addition, MC soil sampling would be performed before and after BIPs and consolidated shots. The SSLs (NMED, 2014) and RSL (USEPA, 2015) would be deployed to determine whether MC contamination exists, as outlined for Alternative 3.

Evaluation Summary

These four (4) alternatives were evaluated using the effectiveness, implementability, and cost criteria set forth in the NCP guidance for conducting EE/CAs. Alternative 4 was ranked best in terms of effectiveness and cost and had the best overall ranking. Alternative 4 is the recommended RA alternative for FI857a MRS. It is both the most protective of human health over the long term and the most cost effective.

5.2. Description of Proposed Action

A phased approach planned for the NTCRA will be comprised of:

- Preliminary activities;
- Surface Clearance;
- Subsurface Clearance;
- Site Restoration/Demobilization; and
- Project Reporting.

All MEC/MPPEH activities will be performed in accordance with procedures described in the DDESB-approved ESS (FPM, 2014b).

A more detailed description of the NTCRA alternative is provided below. Further details concerning operating procedures will be provided in the FI857a NTCRA Work Plan (WP).

5.2.1. Preliminary Activities

Preliminary activities that will be performed to enable the startup of the NTCRA include:

- Preparation of technical planning documents including NTCRA WP;

- Mobilization;
- Establishment of Exclusion Zones whereby all unauthorized personnel will be prohibited from entering when clearance activities are underway;
- Setting up the Field Office, Safe Disposal Area (SDA) and IVS;
- Personnel training; and
- Site preparation including site delineation, grid layout, and brush clearing.

Preparation of Technical Planning Documents

The contractor, FPM, will prepare site-specific planning documents which include a Quality Control (QC) component; health and safety, and explosives safety component; WP; and field procedures. These documents will be reviewed by the Air Force Civil Engineer Center (AFCEC), Holloman AFB, and regulatory agencies and will be finalized prior to conducting the NTCRA.

Mobilization

Mobilization of field staff (management, technical, subcontractors), equipment (vehicles, detection instruments, computers, GPS, etc.), and material (safety supplies, flagging, stakes, etc.) at the FI857a MRS will follow project planning document and Action Memorandum approval.

Explosive Storage Magazine

A Courtesy Storage Agreement (CSA) is signed between FPM and the Holloman AFB 49th MXS (designation for HAFB Munitions Storage Area) to allow courtesy storage of up to 100 pounds Net Explosive Weight of donor explosives in properly cited DDESB-approved facilities. The 49th MXS will assign specific munitions storage bunkers for FPM's use and provide FPM the CSA with required signatures at the time of mobilization. In the event Holloman AFB declines to assign munitions storage bunkers for FPM's use, FPM will provide an ATF (The Bureau of Alcohol, Tobacco Firearms and Explosives) Type II portable magazine for explosive storage.

Setting up the Field Office and Safe Disposal Area

The field office will be the central command location for MEC/MPPEH activities. Personnel will report to this location at the beginning of each work day for the daily health and safety briefing. An SDA will be established in the event that multiple, safe-to-move MEC/MDEH items must be destroyed.

Personnel Training

FPM will ensure that only qualified and properly trained personnel are assigned to positions on project sites.

Site Preparation

Site Delineation: A survey team will perform initial reconnaissance of the site upon mobilization to determine and delineate the field investigation boundaries based on the CSE Phase II results. The NTCRA will be performed across the entire 0.8-acre site.

During the initial reconnaissance, the survey team will examine the site to determine the amount of vegetation that must be removed to accomplish the scope of work. The survey team's

observation, documentation, and analysis of the density of the vegetation and the presence of surface MEC/MPPEH will be used to determine the amount and method of vegetation removal.

Brush Clearing: The amount of vegetation removed will be limited to what is necessary for efficient UXO and DGM operations. Based on the density of vegetated areas, brush clearing will be performed either using machinery such as a brush hog or forestry mower or by manual methods consisting of personnel on the ground using hand or power tools. All clearing activities will be closely coordinated with the Holloman AFB office of Natural Resources.

Grid Layout: FPM survey team will initially establish semi-permanent site control as required across the installation, using existing monuments where practical. Following setup of the site control network, the survey team will stake out the pre-designed 100-foot by 100-foot grid system.

5.2.2. Surface Clearance

Following completion of preparatory activities, the MEC/MPPEH surface clearance will be conducted across the 0.8-acre project area. The purpose of the surface clearance will be to:

- Remove surface hazards (MEC/MPPEH) and debris that could pose a safety hazard to personnel and/or equipment from grid footprints and
- Eliminate sources of DGM signal interference that could obscure subsurface anomalies and thus reduce the effectiveness of the DGM surveys to detect and map subsurface targets.

The MEC/MPPEH surface clearance will include the following tasks:

- Detection of surface MEC/MPPEH using analog hand-held magnetometers;
- Flagging, identifying, and recording the location of discovered MEC/MPPEH with Differential GPS;
- MPPEH inspection process and segregation of MDEH from Material Documented as Safe (MDAS);
- MEC/MDEH demolition; and
- Offsite recycling of MDAS.

5.2.3. Subsurface Clearance

Following completion of the surface clearance, FPM will initiate subsurface clearance consisting of 100% coverage grid-based DGM surveys and intrusive investigation/removal of target source materials.

Subsurface clearance will include the following tasks:

- DGM surveys using G-858 coupled with RTK-GPS for real-time positional control;
- Data analysis, anomaly/target selection, and development of dig sheet lists;
- Intrusive investigation of DGM targets;
- MPPEH inspection process and segregation of MDEH from MDAS;
- MEC and MDEH demolition; and

- Offsite recycling of MDAS.

5.2.4. Site Restoration/Demobilization

Prior to demobilization, and with the pre-approval of the Project Manager (PM) and Holloman AFB, all wooden lath, flagging, and other materials used during the course of MEC/MPPEH operations will be removed from the project site and disposed through a waste carrier.

For locations where excavation or demolition operations have taken place, the areas will be raked and reseeded if required. Once all site restoration activities are completed, the field teams and equipment will be demobilized from the site.

Equipment and excess materials will be demobilized from the project site as tasks are completed. Personnel will be phased from the project when demobilization commences. Personnel will be required onsite until Quality Assurance/QC procedures have been implemented and approved and restoration activities have been completed.

5.2.5. Project Reporting

FPM will complete status reports on a daily and weekly basis. Daily Quality Control Reports containing quality management information pertaining to field activities and operational results completed for each task will also be completed. The After Action Report (AAR) will summarize the results from the MEC/MPPEH surface clearance and subsurface investigation in the form of text, tables, photographs, and detailed figures. The AAR will include site drawings, MEC/MPPEH data, GIS information, DGM data, copies of all manifests, and a detailed narrative of the NTCRA. The completed Draft AAR will be submitted to the AFCEC, Holloman AFB, and regulatory agencies for review and comment. Once all regulatory agency comments have either been resolved or incorporated into the report, the Final AAR would be issued.

To assure consistency throughout the project, the FPM PM will be the primary point of contact between Holloman AFB/AFCEC and the stakeholders and project personnel.

5.3. Technical and Administrative Feasibility of the Proposed Action

The technologies, services, and materials that will be employed for the MEC/MPPEH surface and subsurface clearance have been used in full-scale applications and are readily available. Therefore, this alternative is technically feasible. In addition, it is assumed that this alternative is administratively feasible. The USEPA, the lead regulatory agency for the FI857a EE/CA, concurs with the proposed alternative. No comments on the EE/CA were received during the 30-day public comment period from March 13th to April 13th 2015. Therefore, no changes to the recommended NTCRA described in the EE/CA were required.

5.4. Applicable or Relevant and Appropriate Requirements

The ARARs addressing contaminated environmental media are identified in this section. The NCP (40 CFR 300.5) defines “applicable” requirements as: “those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility citing laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a CERCLA site.” Only those promulgated state standards identified by a state in a timely manner that are substantive and equally or more stringent than federal requirements may be applicable.

The NCP (40 CFR 300.5) further defines “relevant and appropriate” requirements as: “those cleanup standards, standards of control, and other substantive requirements, criteria, or

limitations promulgated under federal environmental or state environmental or facility citing laws that, while not ‘applicable’ to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstances at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well suited to the particular site.” Like “applicable” requirements, the NCP also provides that only those promulgated state requirements identified in a timely manner and are more stringent than corresponding federal requirements may be relevant and appropriate.

USEPA identifies three basic types of ARARs. They include the following: chemical-specific, location-specific, and action-specific.

- Chemical-specific ARARs are generally health- or risk-based values that, when applied to site-specific conditions, result in numerical values. These values establish the acceptable concentration of a chemical that may be found in, or discharged to, the ambient environment.
- Location-specific ARARs are restrictions placed upon removal activities of hazardous substances solely because they are occurring in a particular place.
- Action-specific ARARs are generally technology or activity-based requirements on actions taken with respect to hazardous substances. These requirements are triggered by the particular activities that are selected to accomplish a remedy. Thus, action-specific requirements do not in themselves determine the remedial alternative; rather, they indicate how a selected alternative must be achieved. MEC/MPPEH removal action will be conducted in compliance with Department of Defense (DoD), USAF, and U. S. Army Corp of Engineers (USACE) explosive safety standards and munitions response procedures.

5.4.1. Chemical Specific ARARs

There are no chemical-specific ARARs associated with MEC.

5.4.2. Location-Specific ARARs

Location-specific ARARs set restrictions on the types of activities that can be performed based on site-specific characteristics or location. Alternative actions may be restricted or precluded based on proximity to wetlands or floodplains, presence of natural or cultural resources, or to man-made features such as existing disposal areas and local historic buildings. One cultural site identified at Holloman AFB is located at FI857a MRS (Figure 5-1). FPM will coordinate with Holloman AFB Cultural Resources Office prior to performing any filed activities at that particular location.

No location- specific ARARs guidance was identified. Final location-specific ARARs (statutes and regulations) will be determined in consultation with the USEPA, NMED, and other appropriate federal and/or state agencies. These agencies are responsible for administration of programs that implement the potential location-specific ARARs. Action-Specific ARARs.

5.4.3. Action-Specific ARARs

Based on the removal action alternatives developed to address MEC at the FI857a site, certain action-specific ARARs will be considered. The action-specific ARARs are presented in **Table 5-1**. At present, New Mexico regulates military munitions through CERCLA. In addition, a removal plan approved by NMED must incorporate all substantive requirements of state law,

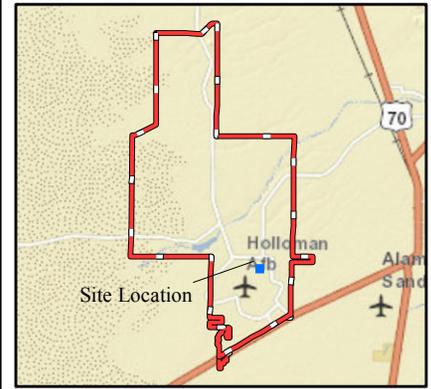
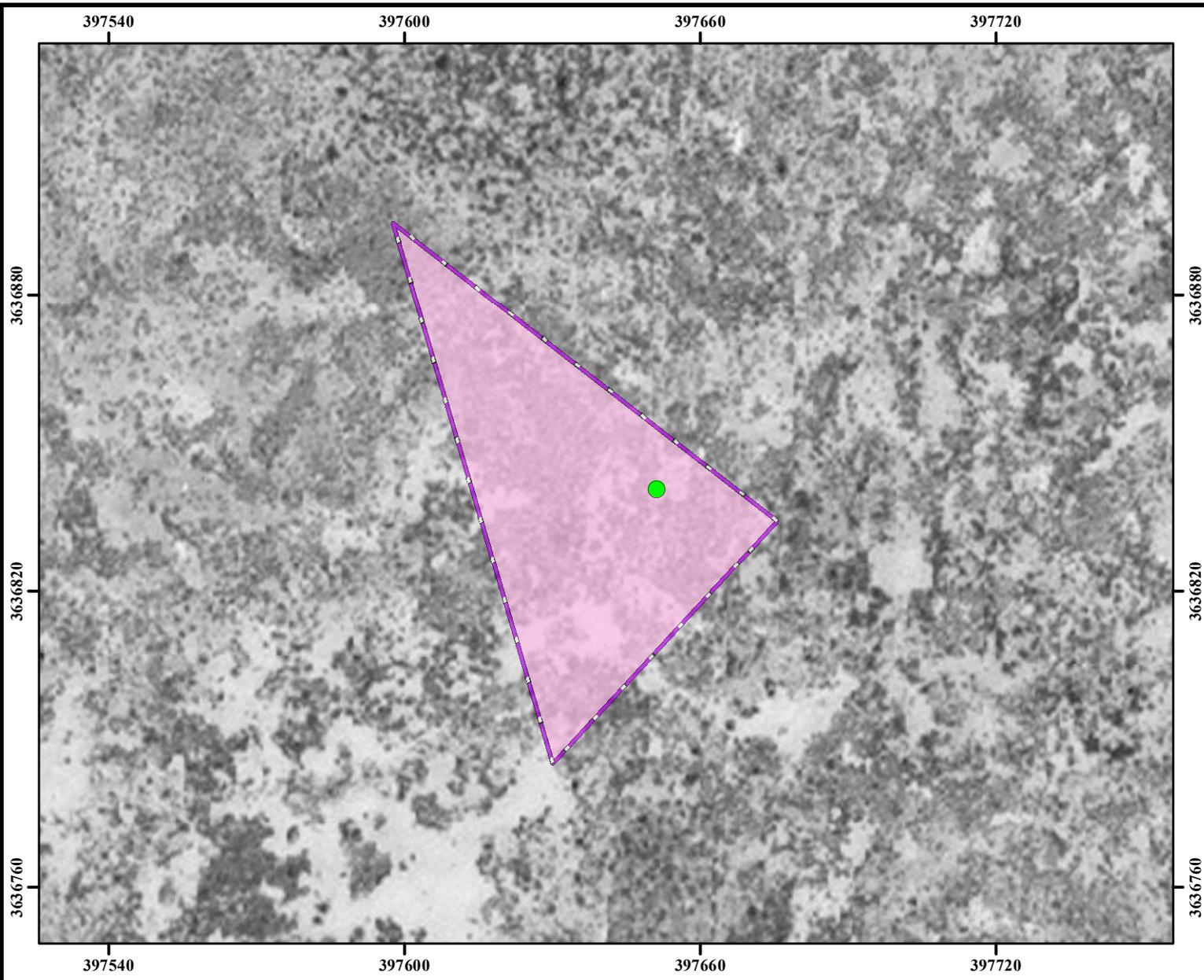
including public participation and review, compliance with state laws and regulations, and all other technical elements to ensure protection of public health and the environment.

5.5. Non-Time-Critical Removal Action Schedule

The general completion time frames for activities associated with the NTCRA at the FI857a MRS are summarized in **Table 5-2**. These dates may be adjusted pending completion of the regulatory and public review and comment process.

5.6. Cost Estimate for Selected Removal Action

The total estimated cost for Alternative 4 is \$132,645 (**Table 5-3**). Alternative 4 includes capital costs (\$132,645) for performing surface clearance across 0.8 acres, 100% DGM coverage of the site, excavation of all anomalies above the established threshold, demolition of MEC, and offsite recycling of MDAS. Since this alternative will result in site closeout, no Post Removal Site Control (PRSC) costs are associated with this alternative.



Legend

- HAFB Cultural Site
- FI857a Former Bunker MRS (0.8 acres)
- Installation Boundary

Performance Based Remediation

New Mexico-Arizona
 Holloman Air Force Base
 Alamogordo, NM

AFCEC

FIGURE 5-1

Location of HAFB Cultural Site
 FI857a MRS



FPM Remediations, Inc.

NOTES:
 Revision Date: 6/16/2015

Coordinate System: NAD 1983 UTM Zone 13N
 Projection: Transverse Mercator
 False Easting: 500,000.0000
 Central Meridian: -105.0000
 Latitude Of Origin: 0.0000
 Base Map Date: (c) 2010 Microsoft Corporation and its data suppliers
 Base Map Source: ESRI Online Bing Data Source

Horizontal Datum: North American 1983
 False Northing: 0.0000
 Scale Factor: 0.9996
 Units: Meter

1 inch = 100 feet



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Table 5-1 List of Potential Action-Specific ARARs

Standard, Requirement, or Criteria	Description	Comment
<u>FEDERAL</u>		
<p><u>Solid Waste Disposal Act, as amended by Resource Conservation and Recovery Act of 1976</u> (42 United States Code [U.S.C.] Sect. 6901-6992K)</p>		
<p>Standards Applicable to Generators of Hazardous Waste (Subtitle C) (40 CFR Part 262)</p>	<p>Establishes standards for generators of hazardous waste.</p>	<p>Applicable if removal action involves off-site disposal or treatment of hazardous waste. On-site generation triggers selected provisions (i.e., waste determination, accumulation time).</p>
<p>Standards for the Management of Specific Hazardous Wastes and Specific types of Hazardous Waste Management Facilities (40 CFR Part 266)</p>	<p>Establishes requirements which apply to recyclable materials that are recovered or disposed on the land.</p>	<p>Applicable as recovered MPPEH certified as MDAS would be recycled as appropriate.</p>
<p><u>Clean Air Act, as amended</u> 42 U.S.C. Sect. 7401-7671Q</p>		
<p>Approval and promulgation of Implementation Plans 40 CFR 52, Subpart T, Louisiana</p>	<p>Establishes Air Quality Control Regions and attainment dates for national standards in those regions.</p>	<p>Applicable for remedial activities that involve air emissions (including dust particulates) e.g., excavation.</p>
<p><u>Hazardous Materials Transportation Act</u> (49 U.S.C. Sect. 1801-1813)</p>		

Standard, Requirement, or Criteria	Description	Comment
Hazardous Materials Transportation Regulations (49 CFR Parts 107, 171-177)	Regulates transportation of hazardous materials.	Applicable if the remedial action involves transportation of hazardous materials.
<u>U.S. Department of Transportation Regulations</u> (49 CFR Parts 170-179)	Establishes regulations for the transportation of hazardous materials by private, common, or contract carriers by motor vehicle.	Applicable if the remedial action involves transportation of hazardous materials.
<u>Occupational Safety and Health Act of 1970</u> PL 91-596; 29 USCA Sect. 651-678		
Occupational Safety and Health Standards (29 CFR Part 1910)	Establishes safety and health requirements for personnel working with hazardous materials and hazardous waste.	Applicable to on-site remedial activities.
Safety and Health Regulations for Construction (29 CFR Part 1926)	Establishes protection standards (e.g., hazard communication, excavation and trenching requirements) for workers involved in hazardous waste operations.	Applicable to on-site remedial activities.
Work Plans MMRP-09-001 (USACE, 2009a)	WPs will be used to describe the goals, methods, procedures, and personnel used for field activities for all munitions response remedial or removal responses and other munitions related actions.	To be Considered (TBC) for all alternatives that will require potential interaction with MEC/MDEH or MD.
Explosives Management Plan MMRP-09-002 (USACE, 2009b)	The Explosives Management Plan will be used to provide details for management of explosives for a specific munitions response or other munitions related project in accordance with applicable regulations. This Data Item Description contains the instructions for preparing WP chapters addressing explosives	TBC to those alternatives that may encounter MPPEH as part of remedial process.

Standard, Requirement, or Criteria	Description	Comment
	management for specific MR or other munitions related projects.	
Safety Submissions MMRP-09-003 (USACE, 2009c)	The ESS is used to provide the appropriate safety criteria for planning and siting of operations for munitions response, Recovered Chemical Warfare Material and other related projects that are in an investigative or characterization phase where there will be intentional physical contact with MPPEH, or presenting a chemical hazard.	TBC to those alternatives that will require removal of MEC/MPPEH as part of the remedial process.
Accident Prevention Plan MMRP-09-005 (USACE, 2009d)	Instructions for preparing an Accident Prevention Plan for conventional ordnance and explosives projects.	TBC to those alternatives that will require removal of MEC/MPPEH as part of the remedial process.
EE/CA, Remedial Investigation and Feasibility Study Reports MMRP-09-010 (USACE, 2009e)	The EE/CA Report, the Remedial Investigation Report and the Feasibility Study Report are used to document the methods employed during site characterization and present the results of the site characterization, an analysis of response action alternatives, and the recommended response alternative. This DID provides the requirements for preparing these reports as part of the MMRP response process and other munitions related actions.	Portions of this guidance are TBC to the completion of this EE/CA.
Accident / Incident Reports MMRP-09-011 (USACE, 2009f)	The Accident/Incident Reports will be used for reporting accidents/ incidents that occur on the work site or in connection with the stated work of this contract.	TBC. Any accidents or incidents that occur during the implementation of remedial alternatives will need to be reported accordingly.
Personnel Qualifications Certification Letter	The Personnel Qualifications Certification Letter is submitted by the contractor certifying	TBC. Proof of training would be maintained for all UXO personnel that would work on the

Standard, Requirement, or Criteria	Description	Comment
MMRP-09-012 (USACE, 2009g)	that key personnel and personnel filling core labor categories meet the training and experience requirements for the position held. Resumes will be used to document personnel qualifications and experience.	site in various capacities in accordance with the work required for the alternatives presented in this EE/CA. Use of properly trained personnel is required by MMRP guidelines.
Implementation of DDESB Guidance on Minimum Separation Distances for Unintentional Detonations (DDESB, 2013)	The USACE has endorsed the use of the Hazard Fragmentation Distance for determining the minimum separation distance for unintentional detonations for MMRP responses/ projects for all MEC/MDEH	TBC for all alternatives that will require potential interaction with MEC/MDEH or MD.
USAF, MEC Hazard Assessment Tool (MHAT) Methodology (USAF, 2011)	This document describes the MHAT methodology for assessing potential explosive hazards to human receptors at MRS. The MHAT allows a project team to evaluate the potential explosive hazard associated with an MRS, given current or reasonably anticipated future conditions, and under various cleanup, land use activities, and Land Use Control (LUC) alternatives.	TBC for all alternatives that will involve LUCs, surface clearances, and/or subsurface clearances.
USACE Engineering and Design Military Munitions Response Actions; Engineer Manual (EM) 1110-1-4009 (USACE, 2010)	This manual provides USACE procedures to be used to perform engineering and design activities for all phases of the MMRP.	TBC for engineering and design activities under the MMRP.
USACE Safety and Health Requirements Manual; EM 385-1-1 (USACE, 2011)	This manual prescribes the safety and health requirements for all USACE activities and operations.	TBC for all on-site remedial activities.
USACE Explosives Safety and Health Requirements Manual; EM 385-1-97	This manual prescribes the safety and health requirements for all USACE activities and operations that involve explosives related	TBC for all alternatives that will require potential interaction with MEC/MDEH or MD.

Standard, Requirement, or Criteria	Description	Comment
(USACE, 2013)	work.	
Air Force Manual 91-201; Explosives Safety Standards (USAF, 2011)	These standards establish a central source for explosive safety criteria. It identifies hazards and states safety precautions and rules when working with explosives.	TBC for all alternatives that will require potential interaction with MEC/MDEH or MD.
DoD Ammunition and Explosives Safety Standards; 6055.09-M (DoD, 2009)	These standards are designed to manage risks associated with DoD-titled ammunition and explosives by providing protection criteria to minimize serious injury, loss of life, and damage to property.	TBC for all alternatives that will require potential interaction with MEC/MDEH or MD.
Department of Defense Instruction 4140.62, Material Potentially Presenting an Explosive Hazard (DoD, 2008)	This instruction provides policy and responsibilities for the management and disposition of MPPEH.	TBC for all alternatives that will require potential interaction with MEC/MDEH or MD
<u>STATE</u>		
NMED New Mexico Administrative Code Title 20 Chapter 9	Applies to the transportation, storage, transfer, processing, recycling, composting, nuisance abatement and disposal of solid waste.	Applicable for remedial actions that involve recycling of solid waste or disposal of solid waste at an approved off-site landfill.
New Mexico Statutes and Codes Chapter 74 – Environmental Improvement.	Establishes a department that will be responsible for environmental management.	Applicable for remedial actions that involve waste management and cleanup.
NMED New Mexico Administrative Code Title 20 Chapter 2 Part 1 and 75	Fugitive emissions fee A fee that specifically allows fugitive dust producing operations or activities is responsible for controlling windblown dust from earthmoving and other activities.	Potentially applicable to fugitive dust emissions during excavation, backfilling, and landscaping activities.

Standard, Requirement, or Criteria	Description	Comment
NMED New Mexico Administrative Code Title 20 Chapter 2 Part 7	General Provisions Emission of an air contaminant, including a fugitive emission, in excess of the quantity, rate, opacity or concentration specified by an air quality regulation or permit condition.	Potentially applicable to fugitive dust emissions during excavation, backfilling and landscaping activities.

Table 5-2 Non-Time-Critical Removal Action Schedule

ACTIVITY	DATE
EE/CA (preparation, review, and approval)	15 November 2013 to 2 December 2014
Action memorandum (with public comment period)	2 December 2014 to 15 December 2015
Explosives Safety Submission	1 October 2013 to 8 July 2014
NTCRA WP (preparation, review, and approval)	9 March 2015 to 25 February 2016
Fieldwork	26 February 2016 to 26 March 2016
AAR	1 April 2016 to 3 October 2016
Site Closeout	3 October 2016 to 3 May 2018

Table 5-3 Cost Estimate for Selected Alternative

ITEM DESCRIPTION	PRICE
Vegetation Removal	\$2,669.19
UXO Mapping	\$19,283.26
UXO Removal	\$14,293.83
Site Management	\$22,306.24
Stakeholder Involvement	\$63,486.99
Escalation	\$10,605
Total Present Cost of Alternative	\$132,645

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6.0 EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

A delay in implementation of the proposed removal action, or taking no action at all, could potentially result in unnecessary exposure to MEC/MPPEH by human receptors. A “no action” response would not include any specific response actions for preventing exposure to MEC/MPPEH hazards. A “no action” response would not establish if or when the remedial action objective had been met, and it would not meet the identified ARARs. In addition, a “no action” response would not provide a long-term remedy that would be effective at protecting human health and the environment.

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7.0 OUTSTANDING POLICY ISSUES

The following outstanding policy issues may be associated with the FI857a MRS:

- **Discovery of Chemical Warfare Material (CWM)** - From previous reports, there is no evidence of recovered CWM or agent breakdown products at the FI857a MRS. In the event that recovered CWM or military munitions with unknown fillers are encountered, all work shall immediately cease and project personnel will be evacuated upwind from the discovery location, and an exclusion zone established in accordance with Engineering Pamphlet 75-1-3 Recovered Chemical Warfare Material Response Procedures (USACE, 2007). The Unexploded Ordnance Safety Officer will notify the Command Post and FPM PM. The Command Post will notify the Holloman Explosives Ordnance Disposal (EOD) and appropriate AF authorities. On-site UXO personnel will secure and guard the site until told to stand down by the Holloman EOD when the Holloman EOD takes control of the site.
- In the event that an unidentified MEC item is encountered, all work will cease and the site will be secured. FPM will take photographs and measurements (if possible) of the item such that it can be identified from ordnance publications. The Senior UXO Supervisor will notify the PM and Holloman EOD to take control of the item if the FPM UXO Team cannot safely dispose of it

Considering that all surface and subsurface explosive hazards will be removed, no other policy issues are associated with the FI857a MRS.

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8.0 ENFORCEMENT

The FI857a MRS at Holloman AFB is not an NPL site and no Federal Facilities Agreement exists for the installation. However, the USAF works voluntarily with the Holloman AFB to implement the MMRP for FI857a Former Bunker MRS with a consistency that complies with the CERCLA guidance of 1980, as amended by the SARA in 1986.

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9.0 RECOMMENDATIONS

This Action Memorandum presents the selected removal action for the FI857a MRS at Holloman AFB in Otero County, New Mexico, developed in accordance with CERCLA as amended, and also in a manner consistent with the NCP. This decision is based on the information gathered during the previous investigations completed at the site and included in the Administrative Record for the site.

Based on the individual and comparative analysis presented in the EE/CA for the FI857a MRS, Alternative 4 (Surface and Subsurface Removal of MEC/MPPEH) will achieve the remedial action objective with a higher certainty of success than the other three alternatives and is consistent with what is anticipated to be overall final remedy for the site. Results from observations during the NTCRA will be used to certify that surface and subsurface removal of MEC/MPPEH has been achieved at the entire FI857a Former Bunker MRS (0.8 acres).

Conditions at the site meet the NCP Section 300.415(b)(2)(vi) criterion for a removal action and approval of the proposed NTCRA is recommended. The total project ceiling, if approved, is estimated to be \$132,645 with no PRSC costs.

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10.0 AUTHORIZING SIGNATURES

APPROVED BY:

Signature _____ Date _____

Name: _____

Title: _____

Agency: Air Force Civil Engineer Center

Signature _____ Date _____

Name: _____

Title: _____

Agency: Holloman Air Force Base

Signature _____ Date _____

Name: _____

Title: _____

Agency: United States Environmental Protection Agency

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