



# Final Proposed Plan

## Charlie Area Fort McClellan, Alabama

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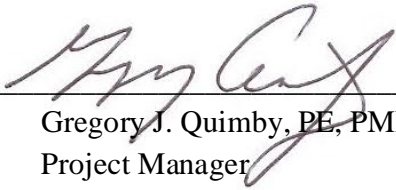
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October 2, 2018

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.



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Gregory J. Quimby, PE, PMP  
Project Manager

**FINAL PROPOSED PLAN  
MRS-01, MRS-02, MRS-03, CHARLIE AREA  
FORT MCCLELLAN, CALHOUN COUNTY, ALABAMA  
OCTOBER 2018**



## 1.0 INTRODUCTION

This Proposed Plan identifies the Preferred Alternative for the three Munitions Response Sites (MRSs) located in Charlie Area of the former Fort McClellan in Calhoun County, Alabama. These three MRSs are located in the eastern portion of the former Fort McClellan Main Post extending east into the Choccolocco Corridor (Figure 1). This Proposed Plan identifies the preferred remedial alternatives for addressing the risk of explosive-related incidents associated with the residual unexploded munitions items that may be present within the MRSs as a result of historical military training activities.

This Proposed Plan is issued by the U.S. Army, the lead agency for site activities, with review and input by the property owners – U.S. Fish and Wildlife Service and Alabama Forestry Commission – and the Alabama Department of Environmental Management (ADEM), the regulatory agency providing support of the Army's cleanup activities at Fort McClellan.

The purpose of this plan is: to document the remedial action alternatives considered; to identify the preferred alternative(s); and to invite the public to participate in the decision-making process for these MRSs by reviewing and commenting on the remedial alternatives presented in this Proposed Plan. Following the public comment period and responding to any public comments received, the Army will make the final remedial action decision in consultation with ADEM, U.S. Fish and Wildlife Service, and Alabama Forestry Commission (see Section 10, *Community Participation*).

Six potential remedial alternatives were considered for the Charlie Area MRSs. These alternatives included:

- Alternative 1 - No action
- Alternative 2 - Institutional Controls
- Alternative 3 - Surface Clearance with Institutional Controls
- Alternative 4 - Clearance to a Specified Depth with Institutional Controls
- Alternative 5 - Clearance to the Depth of Detection with Institutional Controls
- Alternative 6 - Removal of Hazardous Munitions Items via Soil Screening

The Preferred Alternative for MRS-01, which contains the greatest amount of hazardous munitions items, is Alternative 5. The Preferred Alternative for MRS-02 and MRS-03, which contain a significantly fewer amount of hazardous munitions items, is Alternative 2.

**Public Comment Period:**

October 10, 2018 – November 9, 2018

**The public is encouraged to review and comment on the Proposed Plan (see Section 10 and the attached Public Comment Form).** The Army will hold a public comment period from October 10 to November 9, 2018.

**Public Meeting:**

The Army will schedule a meeting during the public comment period if requested by the public.

To request that a public meeting be held to discuss the Preferred Alternatives with the Army and regulators, please contact Mr. Owen Nuttall as indicated below:

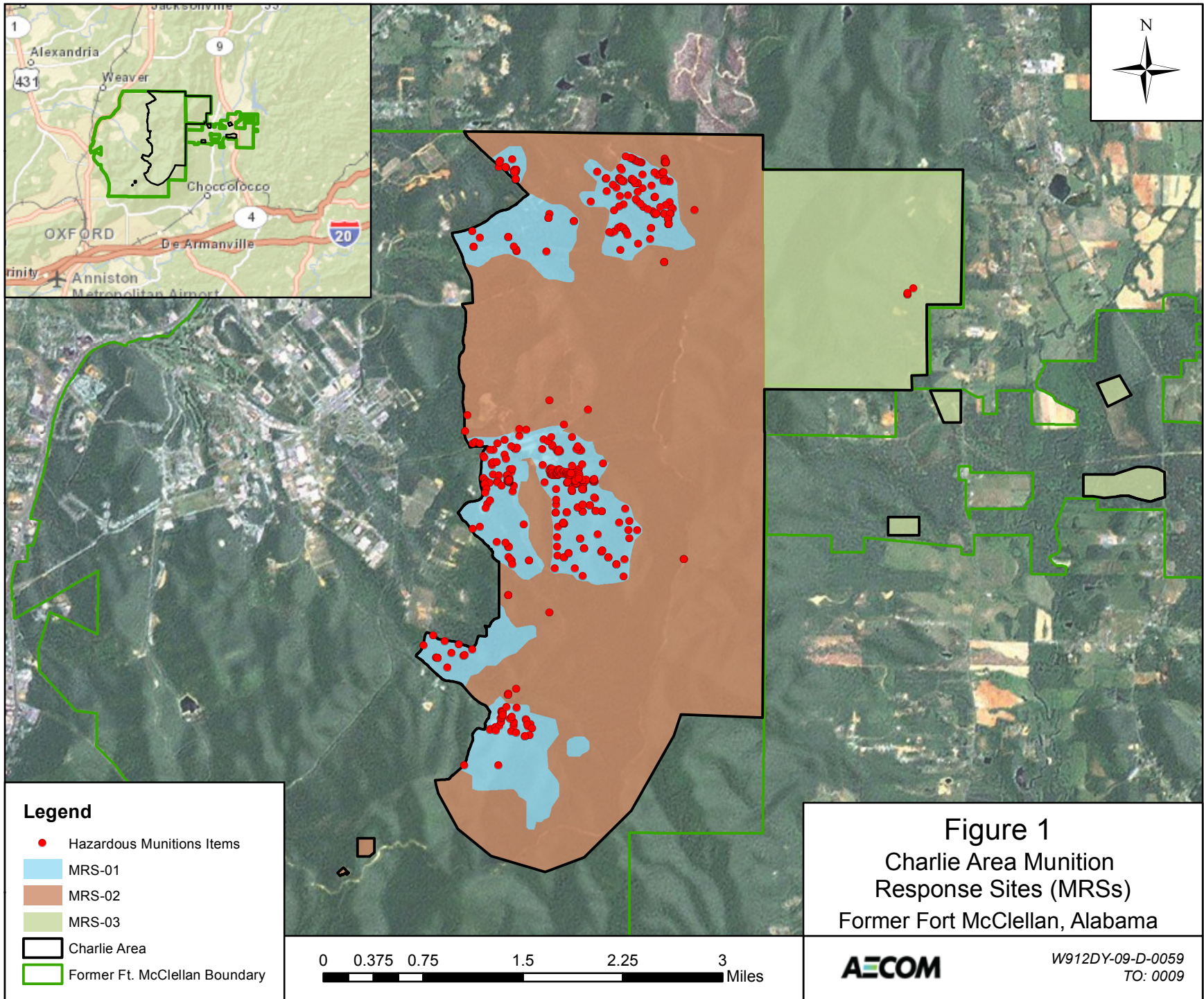
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**For More Information:**

Members of the public can access the Administrative Record online at:  
[www.mcclellan.army.mil/AdminRec.asp](http://www.mcclellan.army.mil/AdminRec.asp).

Paper and electronic copies of the Administrative Record are available at the following location:

McClellan Center Library  
100A Gamecock Drive  
Building 3181, Room 1153  
Anniston, AL 36205  
(265) 238-9352



This document has been prepared in accordance with the U.S. Army Corps of Engineers' Engineering Pamphlet 1110-1-18, *Military Munitions Response Process*, and the U.S. Environmental Protection Agency's guidance document, EPA 540-R-98-031, *A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents*. This Proposed Plan summarizes information presented in detail in the documents that are part of the Fort McClellan Administrative Record.

This Proposed Plan is being issued for public review, comment, and participation to fulfill part of the Army's public participation responsibilities under Section 117(a), 113(k)(2)(B), and 121(f)(1)(G) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986, and under Section 300.430(f)(2) of Title 40, Code of Federal Regulations, Part 300, the National Oil and Hazardous Substances Pollution Contingency Plan.

## **2.0 PROJECT SITE BACKGROUND**

The former Fort McClellan was used for U.S. Army and National Guard artillery training since the years leading up to World War II. In general, the 8,630-acre Charlie Area encompasses a series of 54 historical ranges and training areas, many of which contain overlapping boundaries. Charlie Area has been used for a variety of military weapons training including, but not limited to, field artillery, tank guns, mortars, anti-tank rockets and rifle grenades, small arms, hand grenades, and pyrotechnics. As a result of this training there may be residual munitions items, some of which may still contain an explosive hazard, present on the ground surface and in the subsurface soil within Charlie Area.

A preliminary removal action site evaluation was conducted from 2002 to 2004 with supplemental fieldwork conducted in 2010. Based on the results of this site evaluation, three munitions removal actions, totaling approximately 360 acres, were completed in Charlie Area from 2005 through 2011. Additionally, a site evaluation and subsequent removal action for chemical warfare-related items were conducted from 1999 to 2005.

From September 2014 through May 2015, the Army completed a Remedial Investigation to assess the potential munitions-related explosive hazards in the portions of Charlie Area not subject to previous

removal actions. The investigation resulted in Charlie Area being characterized as three MRSs (MRS-01 through MRS-03). The MRS boundaries were determined based on the identified hazards, land use, and property ownership.

Since Fort McClellan closed in 1999, the Army has participated in Restoration Advisory Board meetings to meet with community members and exchange information about Fort McClellan's environmental cleanup program. The Restoration Advisory Board provides the community an opportunity to ask questions and give their input to the cleanup process, thereby increasing community understanding of the cleanup program. Prior to conducting the Remedial Investigation, the Army prepared a Community Relations Plan to identify the public's concerns about the impacts of the munitions contamination in Charlie Area. The Army has considered the public's concerns as well as input from the members of the Restoration Advisory Board during preparation of this plan.

## **3.0 PROJECT SITE CHARACTERISTICS**

Except for the U.S. Fish and Wildlife Service office and Bains Gap Road, the paved thoroughfare that bisects the site, Charlie Area is predominantly undeveloped forestland. The majority of the Charlie Area consists of the U.S. Fish and Wildlife Service Mountain Longleaf National Wildlife Refuge. Topography within the Charlie Area consists of gently to steeply sloped, rolling hills in the western portion of the area and rugged steep terrain in the Choccolocco Mountains to the east. Elevations range from approximately 800 feet above mean sea level in places along the western edge of Charlie Area to over 2,000 feet above mean sea level at the highest point along the crest of the Choccolocco Mountains. The Choccolocco Corridor east of the mountains is predominantly gently rolling hills. The various portions of Charlie Area are accessible by a series of gravel roads and unimproved trails/firebreaks.

Based on the results of the Remedial Investigation's site characterization, Charlie Area was divided into three MRSs:

**MRS-01** consists of 1,590.53 acres of highly concentrated hazardous munitions-related items. MRS-01 is owned by the U.S. Fish and Wildlife Service and consists of 12 sub-areas that were likely the locations of the impact areas of the former munitions training ranges. That is, these are the primary areas where the munitions previously landed

and have the highest probability of containing unexploded ordnance. The types of hazardous munitions items in MRS-01 include mortars, rockets, hand and rifle grenades, artillery projectiles, and pyrotechnics. Observed concentrations of hazardous items range from 1 up to 30 per acre throughout the MRS. These hazardous items have been encountered from the ground surface to depths up to and in some cases greater than four feet. Most of the MRS-01 sub-areas are located along the western boundary of Charlie Area, with some sub-areas located toward the center of Charlie Area. Six Special Interest Natural Areas are located within the boundaries of MRS-01. The Special Interest Natural Areas were established to help manage and protect habitats of federally listed threatened or endangered, candidate, or state-listed species and habitats containing single or groups of unique or unusual species.

**MRS-02** consists of 5,442.44 acres primarily west of the site's north-south topographical divide, and is comprised of the areas that were formerly used as buffer areas for the impact areas associated with MRS-01. MRS-02 is also owned by the U.S. Fish and Wildlife Service. The probability of encountering hazardous munitions items in MRS-02 is low because the observed concentration of hazardous munitions-related items is approximately 0.4 per acre over the entire MRS. The types of hazardous munitions items in MRS-02 include mortars, rifle grenades, artillery projectiles, and pyrotechnics. These hazardous items have been encountered on the ground surface to depths of approximately 2.5 feet. There are eight Special Interest Natural Areas located within the MRS-02 boundary.

**MRS-03** consists of the residual 1,606.92 acres of Charlie Area located in the Choccolocco Corridor. MRS-03 is owned by the Alabama Forestry Commission. The probability of encountering hazardous munitions-related items in MRS-03 is also low. The observed concentrations of hazardous items within the various parcels of MRS-03 are approximately 0.1 – 0.6 per acre. Hand grenades have been the only type of hazardous munitions items encountered in MRS-03, although several other types of non-hazardous munitions-related items have also been encountered. The hazardous munitions items were located in the subsurface at depths ranging from 6 – 10 inches.

#### **4.0 SCOPE AND ROLE OF RESPONSE ACTION**

The U.S. Army is responsible for executing remedial actions under CERCLA, its implementing regulation, the National Oil and Hazardous Substances Pollution Contingency Plan, and the Defense Environmental Restoration Program. CERCLA is a federal law designed to identify, investigate, and clean up sites contaminated with hazardous substances, pollutants or contaminants (including unexploded ordnance). When Fort McClellan was closed by the Base Realignment and Closure Commission under Public Laws 100-526 and 101-510, Charlie Area was identified for investigation and cleanup. Consequently, the Army has conducted environmental studies and is in the process of planning and conducting cleanup of the hazardous munitions-related items in Charlie Area. In accordance with the Defense Environmental Restoration Program, the Army follows the CERCLA process, and the cleanup of Charlie Area represents the Army's compliance with both the Base Realignment and Closure and CERCLA requirements.

#### **5.0 SUMMARY OF PROJECT SITE RISKS**

A risk of explosive-related injuries may exist in Charlie Area when a human receptor interacts with a hazardous munitions item remaining on-site from historical military training activities. This interaction may either be intentional or unintentional based on the activities conducted by the receptor. The risk of explosive-related injuries was qualitatively evaluated using the receptor exposure routes anticipated for the current and future planned land uses for Charlie Area.

The two main categories of receptors include industrial workers and recreational users. Industrial worker receptors include U.S. Fish and Wildlife Service and Alabama Forestry Commission personnel, researchers/educational programs' personnel, and contractors. Recreational user receptors include vehicular traffic (including operators who stop and exit their vehicles), bicyclists, environmental observers, hunters, hikers, and trespassers.

The industrial worker receptors' may be exposed to hazardous munitions items when conducting surficial or subsurface construction or site management/maintenance activities. The recreational user receptors may be exposed to

hazardous munitions items through incidental contact with munitions items (e.g., handling, kicking, or stepping on) that are encountered on or near the ground surface.

It is the Army's current judgement that the Preferred Alternative identified in this Proposed Plan for each MRS is necessary to protect human health at Charlie Area. These measures are necessary because an unacceptable risk of explosive-related injuries may exist if receptors come into contact with the residual hazardous munitions items remaining from past military training activities.

## 6.0 REMEDIAL ACTION OBJECTIVES

The Remedial Action Objective established for the MRSs is to reduce the risk of explosive-related injuries to industrial and recreational receptors from the presence of a variety of hazardous munitions items at depths up to - and in some cases greater than - four feet below the ground surface. This will be achieved by reducing the quantity of the hazardous munitions-related items in the direct contact exposure pathways of handling, kicking/stepping on, or striking with tools/equipment to fewer than one per acre at a statistical confidence level of 95%. To manage the residual hazards associated with any munitions items remaining on-site, procedures will be in place to modify the behavior of the receptors and reduce the potential for their interaction with the munitions-related items. The selected remedy(ies) will also need to be protective of the sensitive environmental receptors located within Charlie Area.

## 7.0 SUMMARY OF REMEDIAL ALTERNATIVES

The remedial alternatives for the Charlie Area MRSs are presented below. The alternatives are numbered to correspond with their numbers in the Feasibility Study Report (AECOM, 2018).

### 7.1 Alternative 1: No Further Action

The No Further Action alternative involves the continued use of the site without implementing any remedy to mitigate the explosive hazards. This alternative is included to satisfy the CERCLA requirement of providing a baseline condition for which each alternative can be evaluated against. Because this alternative involves no action, there are no costs associated with its implementation.

### 7.2 Alternative 2: Institutional Controls

Because this alternative will not meet the Remedial Action Objective of reducing the quantity of hazardous munitions items to less than one per acre, this alternative is not appropriate for MRS-01. Therefore, it was only considered for MRS-02 and MRS-03.

#### MRS-02:

*Estimated Capital Cost: \$160,410.00*

*Estimated Present Worth Operations and*

*Maintenance (O&M) Costs: \$453,270.27*

*Estimated Present Worth Cost: \$613,680.27*

*Estimated Time to Achieve Remedial Action*

*Objectives: 6 months*

*Estimated Duration of Alternative: 30 years<sup>1</sup>*

#### MRS-03:

*Estimated Capital Cost: \$112,260.00*

*Estimated Present Worth O&M Costs: \$428,141.75*

*Estimated Present Worth Cost: \$540,401.75*

*Estimated Time to Achieve Remedial Action*

*Objectives: 6 months*

*Estimated Duration of Alternative: 30 years*

The institutional controls alternative involves implementing legal or administrative mechanisms that place restrictions on the use of, or limit access to, the MRSs and/or increase the awareness of the munitions-related hazards to minimize the potential for receptor exposure. Institutional Controls are a subset of Land Use Controls. Recognizing that various forms of Land Use Controls may be appropriate for areas of Fort McClellan, a Memorandum of Agreement was signed in December 2000 by the U.S. Environmental Protection Agency, ADEM, and the Army. This Memorandum of Agreement constituted the Land Use Control Assurance Plan, which established the process for determining how Land Use Control plans will be developed and specifies responsibilities for monitoring and enforcement. The Land Use Control Assurance Plan requires preparation of a Land Use Control Implementation Plan in coordination with the property owners.

The anticipated institutional controls include the construction of informational signage at locations within the MRS expected to have the highest amount

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<sup>1</sup> A 30-year duration is used for estimation purposes when the actual duration of the remedy cannot be determined. This estimation applies to all evaluated alternatives in this Proposed Plan.

of receptor activity. Additionally, legal mechanisms will be established outlining the required MMRP support provisions for activities conducted in areas with MEC hazards. All Institutional Controls included in this alternative would be formally documented in a Land Use Control Implementation Plan to clearly delineate the responsibilities of all parties involved in the implementation of the Institutional Controls. The Land Use Control Implementation Plan would identify and describe each Institutional Control placed on the MRS, specify the duration of the Institutional Control and frequency of inspections, and include specific methods for ensuring that the effectiveness of the Institutional Control is maintained.

### **7.3 Alternative 3: Surface Clearance with Institutional Controls**

#### MRS-01 (Sub-areas 1 through 12):

*Estimated Capital Cost: \$22,768,730.87*

*Estimated Present Worth O&M Costs:*

*\$1,130,875.93*

*Estimated Present Worth Cost: \$23,899,606.80*

*Estimated Time to Achieve Remedial Action*

*Objectives: 1.9 years*

*Estimated Duration of Alternative: 30 years*

#### MRS-02:

*Estimated Capital Cost: \$67,466,033.86*

*Estimated Present Worth O&M Costs: \$329,090.12*

*Estimated Present Worth Cost: \$67,795,123.98*

*Estimated Time to Achieve Remedial Action*

*Objectives: 2.8 years*

*Estimated Duration of Alternative: 30 years*

#### MRS-03:

*Estimated Capital Cost: \$20,911,232.67*

*Estimated Present Worth O&M Costs: \$329,090.12*

*Estimated Present Worth Cost: \$21,240,322.79*

*Estimated Time to Achieve Remedial Action*

*Objectives: 1.2 years*

*Estimated Duration of Alternative: 30 years*

For this alternative, Unexploded Ordnance Technicians would conduct a detector-aided visual surface clearance to remove all hazardous munitions items and non-hazardous munitions-related debris located on or protruding from the ground surface. Limited vegetation removal would be conducted to remove impediments that would affect the ability of the Unexploded Ordnance Technicians to effectively operate their analog metal detectors. Any hazardous munitions items encountered would be detonated on-

site, and all non-hazardous munitions-related debris would be sent off-site for shredding or smelting.

Following the surface clearance, Institutional Controls would be established to prohibit receptors from conducting any intrusive activities in locations where subsurface hazardous munitions items may remain without implementing appropriate controls to minimize the risk of exposure to explosive hazards. The Institutional Controls, under this alternative would also be subject to the planning, inspection, and documentation described in Section 7.2.

### **7.4 Alternative 4: Subsurface Clearance to a Specified Depth with Institutional Controls**

Similar to Alternative 3, for this alternative, Unexploded Ordnance Technicians would first conduct a detector-aided visual surface clearance to remove all hazardous munitions items, non-hazardous munitions-related debris, and any non-munitions-related metallic debris located on or protruding from the ground surface. Sufficient vegetation removal would be required to support the surface clearance as well as subsequent full-coverage, grid-pattern, surveys using digital metal detectors. The digital detector data would be used to select subsurface anomalies for removal. The locations of these targets will be reacquired using the same type of metal detector, and then Unexploded Ordnance Technicians would determine the source of the anomaly via intrusive investigation. For this alternative, the depth of excavation will be limited to the source of the anomaly or 24 inches below the ground surface, whichever is encountered first. For portions of the MRSs inaccessible to surveying with digital metal detectors due to steep terrain, subsurface anomalies would be targeted for removal via analog detection methods.

Any hazardous munitions items encountered would be detonated on-site, and all non-hazardous munitions-related debris would be sent off-site for shredding or smelting. If site conditions prohibit the ability to effectively target and/or remove subsurface anomalies (e.g., beneath paved roads, culverts, etc.), Institutional Controls would be implemented that would prohibit receptors from conducting any intrusive activities where clearance to depth could not be conducted without implementing appropriate controls to minimize the risk of exposure to explosive hazards. The Institutional Controls would also be subject to the planning, inspection, and documentation described in Section 7.2.

While this alternative will be effective at achieving the Remedial Action Objective, its implementability is not practical because the metal detectors cannot determine the actual depth of the items in the subsurface. As such, all anomalies identified as potential hazardous munitions-related items will require at least some intrusive investigation. This will make the relative cost of this alternative nearly the same as Alternative 5, but will likely result in fewer hazardous munitions items being removed. For this reason, Alternative 4 was not considered for any of the MRSs and is not included in the evaluation of alternatives presented in Section 8.0.

### **7.5 Alternative 5: Subsurface Clearance to the Depth of Detection with Institutional Controls**

#### MRS-01:

*Estimated Capital Cost: \$75,924,125.78*

*Estimated Present Worth O&M Costs: \$713,144.25*

*Estimated Present Worth Cost: \$76,637,270.04*

*Estimated Time to Achieve Remedial Action*

*Objectives: 3.2 years*

*Estimated Duration of Alternative: 3.2 years*

#### MRS-02:

*Estimated Capital Cost: \$160,284,289.66*

*Estimated Present Worth O&M Costs: \$329,090.12*

*Estimated Present Worth Cost: \$160,613,379.78*

*Estimated Time to Achieve Remedial Action*

*Objectives: 4.9 years*

*Estimated Duration of Alternative: 4.9 years*

#### MRS-03:

*Estimated Capital Cost: \$49,238,000.07*

*Estimated Present Worth O&M Costs: \$329,090.12*

*Estimated Present Worth Cost: \$49,567,090.19*

*Estimated Time to Achieve Remedial Action*

*Objectives: 1.7 years*

*Estimated Duration of Alternative: 1.7 years*

This alternative involves the same procedures as Alternative 4 to remove metallic debris from the ground surface, clear impeding vegetation, and use detectors to identify subsurface anomalies; however, instead of limiting the removal to a specific depth, all targeted anomalies indicative of potentially hazardous subsurface munitions items would be removed. Any hazardous munitions items encountered would be detonated on-site, and all non-hazardous munitions-related debris would be sent off-site for shredding or smelting. If site conditions prohibit the ability to effectively target and/or remove subsurface anomalies (e.g., beneath paved roads, culverts, etc.), Institutional Controls would be

implemented that would prohibit receptors from conducting any intrusive activities where clearance to depth could not be conducted without implementing appropriate controls to minimize the risk of exposure to explosive hazards. The Institutional Controls, if required, would also be subject to the planning, inspection, and documentation described in Section 7.2.

### **7.6 Alternative 6: Removal of Hazardous Munitions Items via Soil Screening**

This alternative satisfies the regulatory requirement to consider an alternative that achieves an unlimited use/unrestricted exposure. This alternative would involve excavating the soil in lifts and separating potentially hazardous munitions-related items from the excavated soil via mechanical screening. Excavation would continue until either the maximum theoretical penetration depth of the largest munitions item associated with each MRS is achieved or bedrock is encountered, whichever occurs first. Because this alternative would achieve unlimited use/unrestricted exposure, no Institutional Controls would be required.

While this alternative will be effective at achieving the Remedial Action Objective, its implementability is not practical because of the significant amount of vegetation removal and construction of temporary haul roads that would be required. This large extent of site disturbance would be detrimental to the current and future forest management land uses of these MRSs. Given the vertical distribution of MEC, the costs for these alternatives would be on the order of \$2.9 billion, \$10.5 billion, and \$3.1 billion for MRS-01, MRS-02, and MRS-03, respectively. These costs are several orders of magnitude larger than the costs associated with the other alternatives. Furthermore, the high clay content of the soil in the MRSs will reduce the efficiency of the screening process. This, coupled with the large extent of site work required to construct the screening plant(s), will result in durations of fieldwork that would far exceed those of the other alternatives. For these reasons, Alternative 6 was not considered for any of the MRSs, and is not included in the evaluation of alternatives presented in Section 8.0.

### **8.0 EVALUATION OF ALTERNATIVES**

Nine criteria are used to evaluate the different remediation alternatives individually and against each other to select a remedy. This section of the

Proposed Plan profiles the relative performance of each alternative against the nine criteria from the National Oil and Hazardous Substances Pollution Contingency Plan, which are outlined in Title 40 of the Code of Federal Regulations Part 300, Section 300.430(e)(9)(iii)(A)-(I), noting how each alternative compares to the other options under consideration. The nine evaluation criteria are discussed below. The “Detailed Analysis of Alternatives” can be found in Section 5 of the Feasibility Study Report (AECOM, 2018).

### 8.1 Overall Protection of Human Health and the Environment

**MRS-01.** Alternatives 1 and 2 were eliminated from consideration for this MRS because neither would meet the Remedial Action Objective of reducing the quantity of hazardous munitions-related items present. Alternatives 3 and 5 both eliminate the unacceptable explosive risk for the current and future land uses. The overall protectiveness of Alternative 3 relies heavily on the use of Institutional Controls to prevent receptor exposure to the subsurface hazards. The level of required support would be commensurate with the amount of required subsurface disturbance (e.g., site construction, improvements, etc.). Whereas, the protectiveness offered by Alternative 5 relies primarily on the physical removal of the hazard.

**MRS-02 & MRS-03.** Alternative 1 was eliminated from consideration for this MRS because it would not meet the Remedial Action Objective of managing the residual risk associated with receptors encountering the remaining hazardous munitions items. Because there is a significantly lower quantity of hazardous munitions-related items present in MRS-02 and MRS-03 than in MRS-01, Alternative 2 would meet the Remedial Action Objective for the quantities of hazardous munitions-related items present in MRS-02 and MRS-03. Therefore, Alternatives 2, 3, and 5 would all provide overall protection of human health and the environment. However, Alternative 2 would not involve the removal of any hazardous munitions items from the MRSs.

#### **Nine Evaluation Criteria for CERCLA Remedial Alternatives:**

##### **Threshold Criteria:**

*Overall Protectiveness of Human Health and the Environment* determines whether an alternative eliminates, reduces, or controls threats to public health and the environment through institutional controls, engineering controls, or treatment.

*Compliance with Applicable or Relevant and Appropriate Requirements* evaluates whether the alternative meets Federal and State environmental statutes and regulations that have been determined to be applicable or relevant and appropriate to the site, or whether a waiver is justified.

##### **Primary Balancing Criteria:**

*Long-Term Effectiveness and Permanence* considers the ability of an alternative to maintain protection of human health and the environment over time.

*Reduction of Toxicity, Mobility, or Volume 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.

*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.

*Implementability* considers the technical and administrative feasibility of implementing the alternative, including factors such as the relative availability of goods and services.

*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.

##### **Modifying Criteria:**

*State/Support Agency Acceptance* considers State concerns related to the analyses and recommendations by the Army, as described in the Remedial Investigation, Feasibility Study, and Proposed Plan.

*Community Acceptance* considers whether the local community agrees with the Preferred Alternative. Comments received on the Proposed Plan are an important indicator of community acceptance.

## 8.2 Compliance with Applicable or Relevant and Appropriate Requirements

A detailed discussion of the Applicable or Relevant and Appropriate Requirements is provided in Section 3.1.1 of the Feasibility Study Report (AECOM, 2018). The Applicable or Relevant and Appropriate Requirements identified for the remedial alternatives include the:

- Resource Conservation and Recovery Act, Subpart M, Military Munitions Rule
- Resource Conservation and Recovery Act, Characteristics of Reactivity in Wastes
- Endangered Species Act
- Clean Water Act, Section 404(b)(1)

**MRS-01.** For the majority of MRS-01, there are no ARARs that would restrict or necessitate a modification to the implementation of any of the identified alternatives. Alternatives 3 and 5 could be implemented in a manner that would minimize the impact to the sensitive ecological habitats that are present in some portions of the MRS, thereby complying with the Endangered Species Act. Although there may be some incidental harm or modification to the habitats of sensitive species associated with the implementation of Alternative 5, this alternative – including the required local vegetation removal – is expected to have a positive impact on the threatened and endangered species in the long-term because it will reduce the amount of competing vegetation and facilitate the U.S. Fish and Wildlife Service’s ability to maintain the quality of the habitat.

**MRS-02 & MRS-03.** There are no Applicable or Relevant and Appropriate Requirements that would restrict or necessitate a modification to the implementation of Alternatives 1, 2, 3, and 5.

## 8.3 Long-Term Effectiveness and Permanence

**MRS-01.** Alternative 1 would provide no long-term effectiveness. Alternatives 3 and 5 both serve as effective remedies in the long-term, which would be confirmed through the CERCLA-required Five-Year Review process to monitor the effectiveness of the remedy. However, Alternative 3 would result in a significantly larger amount of residual subsurface hazardous munitions-related items. The long-term effectiveness of Alternative 3 may be compromised due to migration and/or exposure (e.g., through soil erosion) of the residual hazardous munitions items over time.

**MRS-02.** Alternative 1 would provide no long-term effectiveness. Alternatives 2, 3, and 5 each serve as effective remedies in the long-term, which will be confirmed through the CERCLA-required Five-Year Review process to monitor the effectiveness of the remedy. For comparative purposes, Alternative 2 would result in the highest amount of residual hazardous munitions-related items present (approximately 0.4 per acre), followed by Alternative 3 (approximately 0.2 per acre).

**MRS-03.** Alternative 1 would provide no long-term effectiveness. Alternatives 2, 3, and 5 each serve as effective remedies in the long-term, which will be confirmed through the CERCLA-required Five-Year Review process to monitor the effectiveness of the remedy. Alternatives 2 and 3 would result in quantities of residual hazardous munitions-related items of approximately 0.1 – 0.6 per acre throughout the various parcels of the MRS.

## 8.4 Reduction of Toxicity, Mobility, or Volume Through Treatment

**MRS-01.** Alternative 1 would not involve any reduction in the amount of hazardous munitions-related items, and would result in the same relative hazard level as the baseline condition. Alternative 5 would involve the removal of nearly five times the amount of hazardous munitions-related items than Alternative 3.

**MRS-02.** Alternatives 1 and 2 would not involve any reduction in the amount of hazardous munitions-related items, and would result in the same relative hazard level as the baseline condition. Alternative 5 would result in the removal of approximately 2-3 times more hazardous munitions-related items from the MRS than Alternative 3.

**MRS-03.** Alternatives 1 and 2 would not involve any reduction in the amount of hazardous munitions-related items, and would result in the same relative hazard level as the baseline condition. Based on the Remedial Investigation results (AECOM, 2017), Alternative 3 would remove very little, if any, hazardous munitions-related items from the MRS.

## 8.5 Short-Term Effectiveness

**MRS-01.** Alternative 1 would result in no risk to the community or personnel conducting the remediation work. For both Alternatives 3 and 5, risks to the community can be easily mitigated through the implementation of industry-standard munitions response safety practices/procedures. The difference

in duration between the fieldwork associated with Alternatives 3 and 5 is approximately 14 months.

**MRS-02 & MRS-03.** Alternatives 1 and 2 would result in no risk to the community and negligible risk to personnel conducting the remediation work. For both Alternatives 3 and 5, risks to the community can be easily mitigated through the implementation of industry-standard munitions response safety practices/procedures. The difference in duration between the fieldwork associated with Alternatives 3 and 5 is approximately 26 months for MRS-02 and 6 months for MRS-03.

### **8.6 Technical and Administrative Implementability**

**MRS-01.** There are no potential technological limitations associated with the implementation of any of the alternatives. The administrative challenges of obtaining and coordinating support for routine operations when intrusive activities are necessary would result in Alternative 3 being impractical to implement.

**MRS-02 & MRS-03.** There are no potential technological or administrative limitations associated with the implementation of any of the alternatives for this MRS.

### **8.7 Cost**

**MRS-01.** The capital costs for Alternative 3 (approximately \$23 million) and Alternative 5 (approximately \$76 million) are generally proportional (i.e., +/-10%) to the reduction in the quantity of hazardous munitions-related items that each alternative will achieve.

**MRS-02.** The capital costs for Alternative 3 (approximately \$68 million) and Alternative 5 (approximately \$160 million) are significantly disproportional to the reduction in the quantity of hazardous munitions-related items that each alternative will achieve. This difference is largely a function of the amount of pre-intrusive activities (e.g., civil surveying, vegetation removal, digital metal detector surveying) required over an area with a relatively low concentration of hazardous munitions-related items requiring removal. Because of the relatively low density of hazardous items in MRS-02, the 30-year Present Worth cost for Alternative 2 is significantly more cost effective than Alternative 3 and Alternative 5.

**MRS-03.** The capital costs for Alternative 3 (approximately \$21 million) and Alternative 5 (approximately \$49 million) are significantly disproportional to the reduction in the quantity of hazardous munitions-related items that each alternative will achieve. This difference is largely a function of the amount of pre-intrusive activities (e.g., civil surveying, vegetation removal, digital metal detector surveying) required over an area with a relatively low concentration of hazardous munitions-related items requiring removal. Because of the relatively low density of hazardous items in MRS-03, the 30-year Present Worth cost of Alternative 2 is significantly more cost effective than Alternative 3 and Alternative 5.

### **8.8 State Support/Agency Acceptance**

Based on approval of the Final Feasibility Study Report and the Draft Proposed Plan, ADEM is in agreement with the Preferred Alternatives for the Charlie Area MRSs. ADEM's concurrence on the Final Feasibility Study Report and the Draft Proposed Plan are included as Attachment 1 to this document.

### **8.9 Community Acceptance**

Community acceptance of the Preferred Alternatives will be evaluated after the public comment period ends and will be addressed in a Responsiveness Summary prepared for the Decision Document for the Charlie Area MRSs.

**The evaluation of these alternatives for each MRS is summarized in tabular form on the next page.**

**Summary of the Evaluation of Alternatives for each MRS**

<b>MRS (acreage)</b>	<b>Evaluated Alternatives</b>	<b>30-Year Cost (\$ Net Present Value)</b>	<b>Evaluation Summary</b>
MRS-01 (1,590.53 acres)	No Further Action	\$ 0.00	Will provide no protection of human health.
	Institutional Controls	Not Applicable	Not evaluated due to the inability to achieve the remedial goals.
	Surface Clearance with Institutional Controls	\$ 23,899,606.80	Removes munitions-related items from the surface, where the highest likelihood of interaction is anticipated. Relies on site controls to prevent exposure with subsurface hazardous munitions. Will provide adequate protection of recreational receptors but not industrial receptors. Residual subsurface density of hazardous munitions will range from approximately 1 – 30 per acre. Costs are generally proportional to the achieved reduction in hazard level.
	Subsurface Clearance to the Depth of Detection with Institutional Controls	\$ 76,637,270.04	Will require measures (e.g., mitigation plans) to comply with regulations associated with the protection of critical habitats and the continued existence of protected endangered or threatened species. Would provide the highest level of protectiveness and long-term effectiveness as a remedy. Costs are generally proportional to the reduction in hazard level achieved.
MRS-02 (5,442.44 acres)	No Further Action	\$ 0.00	Will provide no protection of human health.
	Institutional Controls	\$ 613,680.27	Legal/administrative mechanisms will promote awareness of residual munitions-related explosive hazards and result in a decreased potential for receptor interaction with these hazardous. Residual average density of hazardous munitions will be approximately 0.4 per acre.
	Surface Clearance with Institutional Controls	\$ 67,795,123.98	Removes munitions-related items from the surface, where the highest likelihood of interaction is anticipated. Relies on site controls to prevent exposure with subsurface hazardous munitions. Residual subsurface density of hazardous munitions will be approximately 0.2 per acre. The cost is disproportionately higher than other alternatives in relation to the reduction of hazards this alternative will achieve.
	Subsurface Clearance to the Depth of Detection with Institutional Controls	\$ 160,613,379.78	Will require measures (e.g., mitigation plans) to comply with regulations associated with the protection of critical habitats or not jeopardizing the continued existence of protected endangered or threatened species. The cost is disproportionately higher than other alternatives in relation to the reduction of hazards this alternative will achieve.
MRS-03 (1,606.92 acres)	No Further Action	\$ 0.00	Will provide no protection of human health.
	Institutional Controls	\$ 540,401.75	Legal/administrative mechanisms will promote awareness of residual munitions-related explosive hazards and result in a decreased potential for receptor interaction with these hazards. Residual density of hazardous munitions will range from approximately 0.1 - 0.6 per acre.
	Surface Clearance with Institutional Controls	\$ 21,240,322.79	Removes munitions-related items from the surface, where the highest likelihood of interaction is anticipated. Relies on site controls to prevent exposure with subsurface hazardous munitions. Residual subsurface density of hazardous munitions will be approximately 0.1 – 0.6 per acre. The cost is disproportionately higher than other alternatives in relation to the reduction of hazards this alternative will achieve.
	Subsurface Clearance to the Depth of Detection with Institutional Controls	\$ 49,567,090.19	The cost is disproportionately higher than other alternatives in relation to the reduction of hazards this alternative will achieve.

## 9.0 PREFERRED ALTERNATIVE

The preferred remedial alternatives for the three MRSs are summarized as follows:

**MRS-01.** Alternative 5, Subsurface Clearance to the Depth of Detection with Institutional Controls, is the Preferred Alternative for this MRS. This alternative is recommended because it will achieve a substantial risk reduction through the removal of most, if not all, of the hazardous munitions-related items from the most contaminated portion of Charlie Area. In the limited locations where site conditions prohibit the ability to effectively identify and/or remove subsurface anomalies, Institutional Controls will be implemented that prohibit receptors from conducting any intrusive activities without implementing appropriate controls to minimize the risk of exposure to munitions-related explosive hazards. Although costlier than Alternative 3, Alternative 5 will greatly reduce the administration limitations (i.e., frequent coordination for support during routine operations) that would likely negatively affect the implementability of Alternative 3. Additionally, by removing the greatest amount of hazardous munitions items from the MRS, Alternative 5 provides the highest level of long-term risk reduction for the current and future receptors.

**MRS-02.** Alternative 2, Institutional Controls, is the Preferred Alternative for this MRS. This alternative is recommended because the concentration of hazardous munitions-related items currently meets the Remedial Action Objective, and any additional activities conducted to identify and remove the residual hazardous items from the surface or subsurface in this MRS will not be cost-effective. Instead, risk reduction will be achieved by increasing the receptors' awareness of the hazards thereby reducing the potential for interaction at the point of exposure.

**MRS-03.** Alternative 2, Institutional Controls, is also the Preferred Alternative for this MRS. This alternative is recommended because the concentration of hazardous munitions-related items currently meets the Remedial Action Objective, and any additional activities conducted to identify and remove the residual hazardous items from the surface or subsurface in this MRS will not be cost-effective. Instead, risk reduction will be achieved by increasing the receptors' awareness of the hazards

thereby reducing the potential for interaction at the point of exposure.

Based on information currently available, the Army believes the MRSs' Preferred Alternatives meet the threshold criteria and provide the best balance of tradeoffs among the other alternatives with respect to the balancing and modifying criteria. The Army and ADEM expect the Preferred Alternatives to satisfy the following statutory requirements of CERCLA Section 121(b): 1) be protective of human health and the environment; 2) comply with Applicable or Relevant and Appropriate Requirements; 3) be cost-effective; 4) utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and 5) satisfy the preference for treatment as a principal element.

**It is important to note that the Preferred Alternatives for the MRSs that are outlined in this Proposed Plan may change depending upon any new information or public comments received.**

## 10.0 COMMUNITY PARTICIPATION

The Army provides information to the public regarding the remedial actions at the former Fort McClellan through public meetings, the Administrative Record file, and announcements published in the local newspaper, *The Anniston Star*. The Army encourages the public to gain a more comprehensive understanding of Charlie Area and the activities that have been conducted at the three MRSs. The key documents located in the Administrative Record that pertain to this Proposed Plan are listed on the following page.

To obtain further information about this document or other primary documents, please contact Mr. Owen Nuttall as indicated below.

Mr. Owen M. Nuttall  
Site Manager  
U.S. Army Transition Force  
681 Castle Avenue  
Fort McClellan, AL 36205-3937  
Phone: (404) 469-3399  
E-mail: [Owen.M.Nuttall.civ@mail.mil](mailto:Owen.M.Nuttall.civ@mail.mil)

**Primary Background Documents for the Charlie Area MRSs:**

AECOM Technical Services, Inc., 2017. *Final Remedial Investigation Report, Charlie Area RI/FS, Fort McClellan, Alabama*. September.

AECOM Technical Services, Inc., 2018. *Final Feasibility Study Report, Charlie Area, Fort McClellan, Alabama*. May.

Environmental Science and Engineering, Inc., 1998, *Final Environmental Baseline Survey, Fort McClellan, Alabama*, January.

Parsons Engineering Science, Inc., 2002, *Final Chemical Warfare Material (CWM) Engineering Evaluation/Cost Analysis (EE/CA), Fort McClellan, Alabama*, June.

Shaw Environmental, Inc., 2005, *Final Closure Report, 3X Scrap Removal, Training Area T-38, Former Technical Escort Reaction Area, Parcel 186(6), Training Area T-24A, Former Chemical Munitions Disposal Area, Parcel 187(7), Fort McClellan, Calhoun County, Alabama*, June.

Tetra Tech EC, Inc., 2006, *Final Site Specific Final Report, Bains Gap Road MEC Removal Action, Fort McClellan, Alabama*, July.

Tetra Tech FW, Inc., 2007, *Final Site Specific Final Report FWS Land Transfer Area (Roads, Firebreaks, and High Use Areas), Fort McClellan, Alabama*, December.

Tetra Tech EC, Inc., 2011, *Final Site Specific Final Report Remedial Action at Selected Sites within the Charlie Area, Fort McClellan, Alabama*, March.

U.S. Army Corps of Engineers, St. Louis District, 2001, *Archives Search Report, Conclusions & Recommendations (Revision 1), Fort McClellan, Anniston, Alabama*, September.

U.S. Army Corps of Engineers, St. Louis District, 2001, *Archives Search Report, Maps (Revision 1), Fort McClellan, Anniston, Alabama*, September.

Alternatively, the public may contact Ms. Brandi Little with ADEM.

Ms. Brandi Little  
Remedial Project Manager  
Alabama Department of Environmental  
Management  
Government Hazardous Waste Branch, Land  
Division  
1400 Coliseum Boulevard  
Montgomery, AL 36110-2059  
Phone: (334) 274-4226  
Fax: (334) 279-3050  
E-mail: [BLittle@adem.state.al.us](mailto:BLittle@adem.state.al.us)

The public's input on this Proposed Plan is important to the Army. A Public Comment Form is attached to the end of this plan. The final remedial decisions for the Charlie Area MRSs will be made only after the public comment period has ended and all of the comments received have been reviewed and considered. Because any of the alternatives in this Proposed Plan may be selected, comments are requested on any or all of the alternatives. Comments received regarding potential options not considered in this Proposed Plan will also be given serious consideration. Army responses to comments received during the public comment period on the Proposed Plan will be presented in the Responsiveness Summary of the Decision Document. It is important to note that the final remedial action for the MRSs may be different from the Preferred Alternatives presented in this Proposed Plan depending upon any new information or public comments received.

**Dates to Remember:**

**MARK YOUR CALENDAR**

**Public Comment Period:**

October 10, 2018 – November 9, 2018

**The public is encouraged to review and comment on the Proposed Plan.** The Army will hold a public comment period from October 10 to November 9, 2018.

The public will be notified of the public comment period through a notice in the *Anniston Star*.

**Public Meeting:**

The Army will schedule a meeting during the public comment period if requested by the public. The public will be notified of the date, time, and location of the meeting through a notice in the *Anniston Star*.

To request that a public meeting be held to discuss the Preferred Alternatives with the Army and regulators, please contact Mr. Owen Nuttall as indicated below:

Mr. Owen M. Nuttall  
Site Manager  
U.S. Army Transition Force  
681 Castle Avenue  
Fort McClellan, AL 36205-3937  
Phone: (404) 469-3399  
E-mail: [Owen.M.Nuttall.civ@mail.mil](mailto:Owen.M.Nuttall.civ@mail.mil)

In addition, contact Mr. Nuttall to request an extension to the comment period or to obtain further information about this document or other primary reference documents for the Charlie Area MRSs.

**LIST OF ACRONYMS**

ADEM	Alabama Department of Environmental Management
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
MRS	Munitions Response Site
O&M	operations and maintenance

**GLOSSARY OF TERMS**

**Administrative Record** – The body of reports, official correspondence, and other documents that establish the official record of analysis, cleanup, and final closure of a CERCLA site.

**Applicable or Relevant and Appropriate Requirements** - Substantive provisions of any promulgated Federal or more stringent State environmental standards, requirements, criteria, or limitations that are determined to be legally applicable or relevant and appropriate requirements for a CERCLA site or action. Applicable requirements are those promulgated standards, requirements, criteria, or limitations that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a CERCLA site. Relevant and appropriate requirements are requirements that, while not legally “applicable” to circumstances at a particular CERCLA site, address problems or situations sufficiently similar to those encountered at the site that their use is well-suited.

## **GLOSSARY OF TERMS (CONTINUED)**

**Anomaly** - Any item that is seen as a subsurface irregularity after a metal detection survey. This irregularity should deviate from the expected subsurface ferrous and non-ferrous material at a site (i.e., pipes, power lines, etc.).

**Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)** – A federal law that addresses the discharge and remediation of hazardous substances, pollutants, and contaminants into the environment. Provides for a structured remedial system, makes any entity that had a role in the contamination liable for the cleanup, arranges for the funding of abandoned sites, and authorizes the National Contingency Plan.

**Decision Document** - A legal document for sites not listed on the National Priority List that explains to the public which remedial cleanup alternative will be used at a site. The Decision Document is based on information and technical analysis generated during the remedial investigation, risk assessments, feasibility study, and consideration of public comments and concerns.

**Feasibility Study** – The study evaluates possible remedies using the information generated from the Remedial Investigation. The Feasibility Study becomes the basis for selection of a remedy that effectively eliminates the threat posed by contaminants at the site.

**Five-Year Review** - Section 121 of CERCLA requires that remedial actions which result in any hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure be reviewed every five years to ensure protection of human health and the environment.

**Hazardous Munitions Items** – Military munitions or the components of military munitions that contain a residual explosive hazard.

**Munitions Response Site (MRS)** – A discrete location within a defense site that is known to require a munitions response (investigation, removal action and/or remedial actions).

**Preferred Alternative** – The alternative that, when compared to other potential alternatives, was determined to best meet the CERCLA evaluation criteria and is proposed for implementation at a site.

**Proposed Plan** – A plan that identifies the preferred remedial alternative for a site, and is made available to the public for comment.

**Remedial Investigation** – Exploratory inspection conducted at a site to define the nature and extent of contamination present.

**Land Use Controls** – Any type of physical, legal, or administrative mechanism that restricts the use of or limits access to real property to prevent or reduce risks to human health and the environment. Land Use Controls are subdivided into two categories: Institutional Controls (i.e., the legal or administrative mechanisms) and Engineering Controls (i.e., the physical mechanisms such as fencing, site capping, etc.)

**Responsiveness Summary** – A summary of oral and/or written comments received during the proposed plan comment period and includes responses to those comments. The Responsiveness Summary is a key part of the Decision Document, highlighting community concerns.

**Unlimited Use/Unrestricted Exposure** – Generally is the level of cleanup at which all exposure pathways present an acceptable level of risk for all land uses.

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**ATTACHMENT 1**

**ADEM COMMENTS AND CONCURRENCE LETTERS**

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Alabama Department of Environmental Management  
adem.alabama.gov

1400 Coliseum Blvd. 36110-2400 ■ Post Office Box 301463  
Montgomery, Alabama 36130-1463  
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June 22, 2018

CERTIFIED MAIL # 91 7199 9991 7038 0641 4995

Mr. Owen M. Nuttall  
Site Manager  
US Army Transition  
681 Castle Avenue  
Anniston, Alabama 36205

**RE: ADEM Review and Concurrence:** *Final Feasibility Study Report – Charlie Area*, dated May 23, 2018  
Fort McClellan, Calhoun County, Alabama  
Facility I.D. No. AL5 000 053 611

Dear Mr. Nuttall:

The Alabama Department of Environmental Management (ADEM or the Department) has completed the review of the aforementioned document, dated May 23, 2018, and has determined that the Army's *Final Feasibility Study Report – Charlie Area* is complete and no additional information and/or data will be required at this time. All previous comments included in ADEM's May 7, 2018 letter were addressed in the revised document; therefore, the Department concurs with the subject document at this time.

If you have any questions concerning this matter, please contact Mr. William Duke of the Remediation Engineering Section at 334-271-7782 or via email at [william.duke@adem.alabama.gov](mailto:william.duke@adem.alabama.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Jason Wilson".

Jason Wilson, Chief  
Governmental Hazardous Waste Branch  
Land Division

JJW/ATM/WMD/tlp

Cc: Ms. Lisa Holstein/Army  
Ms. Leigh Lattimore/EPA Region 4  
Ms. Melissa Shirley/USACE, Mobile District  
Mrs. Ashley Mastin/ADEM  
Mrs. Brandi Little/ADEM



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Montgomery, Alabama 36130-1463  
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May 7, 2018

**CERTIFIED MAIL #** 91 7199 9991 7038 0641 4537

Mr. Owen M. Nuttall  
Site Manager  
US Army Transition  
681 Castle Avenue  
Anniston, Alabama 36205

**RE: ADEM Review and Comments:** *Draft Feasibility Study Report – Charlie Area*, dated February 16, 2018  
Fort McClellan, Calhoun County, Alabama  
Facility I.D. No. AL5 000 053 611

Dear Mr. Nuttall:

The Department has completed the review of the aforementioned document, dated February 16, 2018, and determined that the Army's *Draft Feasibility Study Report – Charlie Area* is incomplete and additional information and/or data will be required.

Comments regarding the Army's *Draft Feasibility Study Report – Charlie Area* are provided in the attached document. A revised Draft Feasibility Study Report or appropriate revisions addressing all comments should be submitted within 30 days of receipt of this letter. Responses may be submitted in the form of a revised Draft Feasibility Study Report or appropriate revised pages and figures to be inserted in the original submission. If the Army chooses to submit revised pages, please date or code each page and figure. For example, **25(r-6/12/18)** would be page 25 revised June 12, 2018.



**Mr. Owen Nuttall**

**May 7, 2018**

**Page 2 of 3**

If you have any questions concerning this matter, please contact Mr. William Duke of the Remediation Engineering Section at 334-271-7782 or via email at [william.duke@adem.alabama.gov](mailto:william.duke@adem.alabama.gov).

Sincerely,



Jason Wilson, Chief  
Governmental Hazardous Waste Branch  
Land Division

JJW/ATM/WMD/tp

Attachment

Cc: Ms. Lisa Holstein/Army  
Ms. Leigh Lattimore/EPA Region 4  
Mr. Bob Beacham/USACE, Mobile District  
Mrs. Ashley Mastin/ADEM  
Mrs. Brandi Little/ADEM  
Mr. Robin Scott/MDA

Mr. Owen Nuttall

May 7, 2018

Page 3 of 3

**ADEM Comments**  
*Draft Feasibility Study Report – Charlie Area*  
**Fort McClellan, Calhoun County, Alabama**  
**May 7, 2018**

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**Specific Comments**

1. **Page 3-5, Section 3.3.1.2 Digital Geophysical Mapping Process Option:** This section states, “One of the potential limitations of using DGM methods is its decreased effectiveness in areas saturated with subsurface anomalies because of the inability to isolate individual anomaly locations; however, the RI results did not identify any locations of saturated anomalies, indicating that this technological limitation will not impact the ability to conduct a removal action using DGM methods.” While the remedial investigation (RI) did not identify saturated areas, high anomaly density areas are suspected. Fort McClellan also contains numerous veins/pockets of ferrous soil that can impact digital geophysical mapping (DGM) operations. Please add language to ensure all future planning for DGM operations identifies contingencies for these possible site conditions. In addition, please add this information to the conceptual site model (CSM) within section 2.2.4 of the report.

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**Response to Alabama Department of Environmental Management (ADEM) Comments on  
Draft Feasibility Study Report – Charlie Area (dated February 16, 2018)  
Fort McClellan, Alabama**

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*Comments from Jason Wilson, Chief, Governmental Hazardous Waste Branch, Land Division, provided in a letter dated May 7, 2018.*

**Comment 1: Page 3-5, Section 3.3.1.2 Digital Geophysical Mapping Process Option: This section states, “One of the potential limitations of using DGM methods is its decreased effectiveness in areas saturated with subsurface anomalies because of the inability to isolate individual anomaly locations; however, the RI results did not identify any locations of saturated anomalies, indicating that this technological limitation will not impact the ability to conduct a removal action using DGM methods.” While the remedial investigation (RI) did not identify saturated areas, high anomaly density areas are suspected. Fort McClellan also contains numerous veins/pockets of ferrous soil that can impact digital geophysical mapping (DGM) operations. Please add language to ensure all future planning for DGM operations identifies contingencies for these possible site conditions. In addition, please add this information to the conceptual site model (CSM) within section 2.2.4 of the report.**

Response 1: Paragraph 3.3.1.2.2 was changed to: “One of the potential limitations of using DGM methods is its decreased effectiveness in areas saturated with subsurface anomalies because of the inability to isolate individual anomaly locations; however, the RI results did not identify any locations of saturated anomalies, indicating that this technological limitation will not have a significant impact on the ability to conduct a removal action using DGM methods. However, areas of high anomaly density and/or veins/pockets of ferrous soil may be encountered in Charlie Area. The inability to isolate individual anomalies in these areas may affect the selection of an appropriate recovery technology (refer to Section 3.3.2). There are significant vegetation and topographic constraints in Charlie Area that will have to be negotiated to avoid limiting the effectiveness of DGM. Any vegetation obstructing the ground surface will require removal. Slopes over 40% pose both quality and safety issues for DGM data collection.”

In Section 3.3.2, Recovery Technologies, the first two sentences of Paragraph 3.3.2.2 were revised to address the potential contingencies for excavating anomalies in areas of high anomaly density: “Mechanical investigation methods involve using heavy equipment to remove both the overburden and the source of the anomaly simultaneously. This method is most appropriate for areas where high anomaly density prevents the ability to isolate individual anomalies for removal.”

Section 2.2.4.2, Physical Profile, of the Conceptual Site Model was revised to address the potential presence of high anomaly density areas. Paragraph 2.2.4.2.3 was revised to: “The dense vegetation may restrict accessibility in portions of the MRSs, which will present challenges to MEC recovery operations. Additionally, areas of high anomaly density and/or veins/pockets of ferrous soil may be encountered in Charlie Area. These areas may prevent the ability to isolate individual anomalies for excavation, which will require the

implementation of contingent approaches/technologies during MEC recovery operations.”

Additionally, Table 3-2 was revised to include the potential use of analog methods as a contingency for the preferred detection method of DGM in high anomaly density areas. The note in Table 3-2 was revised to state that, “analog geophysical surveying can be conducted in areas with steep slopes or as an interim step to reduce the number of anomalies prior to DGM, and advanced geophysical classification can be used under paved areas.”

#### Supplemental Responses:

1. During preparation of the Proposed Plan, it was recognized that the annual operation and maintenance (O&M) costs associated with verification of the Institutional Controls and Regulatory coordination/reporting were inadvertently omitted from Alternative 5. The Alternative 5 costs were revised in Section 5.3.4.2.7, Tables 1-1 and 5-4, and Appendix B to reflect this change. Because the Alternative 5 present worth O&M costs were such a small component of the overall present worth costs for each MRS (i.e., less than 1%), this revision did not impact any of the alternative analyses.



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September 27, 2018

**CERTIFIED MAIL #** 91 7199 9991 7038 0641 9723

Mr. Owen M. Nuttall  
Site Manager  
US Army Transition Force  
681 Castle Avenue  
Anniston, Alabama 36205

**RE: ADEM Review and Concurrence:** *Draft Proposed Plan, Charlie Area*, dated  
July 12, 2018  
Fort McClellan, Calhoun County, Alabama  
Facility I.D. No. AL5 000 053 611

Dear Mr. Nuttall:

The Alabama Department of Environmental Management (ADEM or the Department) has completed the review of the aforementioned document, dated July 12, 2018, and has determined that the Army's *Draft Proposed Plan, Charlie Area* is complete and no additional information and/or data will be required at this time. Accordingly, the Department concurs with the subject document at this time. Please provide the final Proposed Plan that will be available for public comment to the Department for review. Additionally, please provide a revised final Proposed Plan should any comments be received during the public review period.

If you have any questions concerning this matter, please contact Mr. William Duke of the Remediation Engineering Section at 334-271-7782 or via email at [william.duke@adem.alabama.gov](mailto:william.duke@adem.alabama.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Jason Wilson".

Jason Wilson, Chief  
Governmental Hazardous Waste Branch  
Land Division

JJW/ATM/WMD/tlp

Cc: Ms. Lisa Holstein/Army  
Ms. Leigh Lattimore/EPA Region 4  
Ms. Melissa Shirley/USACE, Mobile District  
Mrs. Ashley Mastin/ADEM  
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